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ECONOMIC EXPERIMENT INDICATES NEED FOR PURCHASE PLAN CHANGES

Moscow EKONOMIKA SELSKOGO KHOZYAYSTVA in Russian No 5, May 87 pp 49-56

[Article by Doctor of Economic Sciences Professor A. Okhapkin and VNIETUSKh [All-Union Scientific Research Institute of Economics and Technical Management of Agriculture] Doctor of Economic Sciences M. Ratgauz under the rubric "Economic Experiment": "Forming Agricultural-Product Sales Plans under Conditions of Economic Experiment"]

[Text] A broad-scale economic experiment in improving the system of management and the mechanism of economic operation has been conducted since 1 Jan 86 in Stavropol Kray, Vologda Oblast and in six rayon agro-industrial associations of the Russian Federation.

The new mechanism of economic operation envisages fundamental changes in mutual relations in the formation and realization of agricultural-product sales plans. This group of measures is being compared to the substitution of payment-in-kind for requisitions. The basic specific features of the new approach can be reduced to the following:

1. Trends toward supplying the oblast (kray) population through local resources have been strengthened. Only the target for product deliveries outside the boundaries of the given region is passed along. Thus, the centralized planning of output (aside from grains and industrial crops) is being extended only to interregional deliveries. Planning regulation of intraregional volumes is charged to the corresponding local organ responsible for supplying the population of the given territory with foodstuffs. This is the essence of the action of the principle of payment-in-kind at the oblast level.

2. The rights of agricultural enterprises for commodity production beyond the plan have been expanded, including the right to select sales channels for it and the establishment of prices at the agreement of the parties. This right goes into effect for fruit, vegetable and potato crops at 71 percent of the plan volume.

3. Incentive prices for food commodities produced as a result of the processing of fruits, vegetables and other products and sold through sub-departmental agricultural-enterprise stores have been introduced.

4. The planning of procurements at experimental sites has been decentralized. The plan is formulated directly by the farms, but it cannot be lower than the volume prevailing in the preceding five-year plan.

5. Private subsidiary farming (PSF) is deemed to be a component of socialist agricultural production with the provisions arising therefrom on contract relations between PSF, agricultural enterprises and consumer cooperatives apropos of the production and sale of agricultural products and counting them toward fulfillment of the plan for sales to the state with the preservation of incentive payments for kolkhozes and sovkhozes.

The enumerated specific features are introducing substantive changes in the mutual relations among agricultural committees and associations, procurement organizations, kolkhozes and sovkhozes apropos of the formation and realization of agricultural-product procurement plans and their material and technical support.

All of these changes must be studied carefully from the point of view of their effect on the economic interests of all the participants in the given process. Only a precise knowledge of and regard for the interests of each of them makes it possible to substantiate efficient methods of organizing mutual economic relations with regard to planning and selling agricultural commodities. The year over which the experiment is being conducted is a relatively short time period to evoke a definitive judgment relative to the changes in the interaction of the economic relations of such a complex and multifaceted process as the planning and sale of agricultural products. Only a preliminary evaluation of certain instances characterizing the definite thrust in the dynamics of the economic interests is currently possible. Such an analysis is essential to make efficient changes in the experimental conditions or in the practice of employing them.

We note that raising the responsibility of local organs for supplying the population with foodstuffs under conditions of the abrogation of centralized procurement planning causes these organs to strive to pass along those plans for product sales that would facilitate to the maximum the solution of the food problem in the given region.

At the same time, the agricultural enterprises as before have no vested interest in adopting intensive plans. Furthermore, by virtue of the effect of new incentives (preferential terms for the sale of products beyond the plan; reciprocal sale of means of production enjoying increased demand; loss of bonuses by management personnel in the event of non-fulfillment of the sales plan for the principal types of products), the possibility of a divergence of views is increased, and the real possibility of realizing its interests has moreover appeared for the farm. Under the conditions of the experiment, they formulate the procurement plan that can be established for the existing level independently.

In Kinelskiy Rayon of Kuybyshev Oblast, for example, the initial proposals for the procurement of agricultural products for 1986 were close to the level achieved in 1981-1985 and totaled 101.8 percent of the indicated base period.

A low growth rate--2 percent of the preceding five-year plan--was also assumed for 1986-1990 overall. For several farms, moreover, the initial plan outlines for product sales to the state in 1986 even turned out to be lower than the level that had been achieved earlier.

Several structural changes in the volumes of state procurements are being observed. In this same Kinelskiy Rayon some farms, making use of the rights granted to them in the selection of specific types of products designated for sale to the state, have proposed somewhat of a reduction in procurements of grain and sugar beets and have considerably increased the preliminary outlines for the sale of products that are typical of the suburban region: fruits and berries by 6.5 percent, milk by 12.4 percent and pork by 53.7 percent.

Good prospects are appearing for a convergence of the interests of agricultural enterprises and PSF. Insofar as the latter, under the new economic conditions, is working on fulfilling the farm plan, from the point of view of the farms it is not considered to be delivery on the side. The provisions on the preservation of benefits in supplemental payments over the procurement prices acts in the same direction.

Thus, under the new conditions substantial changes are being observed in the interaction of interests apropos of the composition and realization of procurement plans. The concept of resolving the given circle of tasks should consequently be based on new approaches. In this sense, the question of whether the problem of plan intensiveness retains its former sharpness and, if so, what incentive methods should be employed to resolve it seems most substantive.

The need to maintain the vested interest of collectives in adopting and fulfilling intensive targets is usually justified by considerations going back to the two functions of a plan: ensuring proportionality and balance and stimulating the fuller utilization of accumulated productive potential. Various measures are proposed and frequently employed in order to achieve a state of vested interest in intensive planning. All of them can be reduced to two groups: measures of influencing the collective, providing for a neutral attitude toward the level of plan intensiveness, and special economic incentives, facilitating the adoption and fulfillment of intensive plans.

A specific feature of the first approach is refraining from incentives that evoke a desire to diminish the plans (bonuses for overfulfilling plan indicators and the like) and their replacement with others that are based on other criteria--the achieved or standard level. It is assumed that this substitution will ensure a neutral attitude toward the plan, that is, an attitude in which the material interests of the collective will not be connected with the level of plan fulfillment.

The second approach is based on incentives depending on the intensiveness of the plans combined with a decrease in the norms (sizes) of incentives for achievements (production increases, overfulfillment of standards and the like) not envisaged by the plan. It is felt that this approach will provoke a desire among the collectives to reflect fully all resources in the plans they propose.

We will consider how the new conditions of economic operation affect the realization of the two cited plan functions and methods for stimulating their intensiveness.

At an interregional level, the need for balance relates to deliveries to centralized allocations. From this point of view, it is important that the targets for the transfer of products to these allocations be fulfilled unwaveringly. The mechanism that guarantees receipts for the centralized allocations is based on compensations for under-deliveries at the expense of resources intended for local consumption. Insofar as the interrepublic volume of deliveries is provided for, as a rule, in the planning of procurements by farms at the extant level, the problem of intensiveness of plans at the given level does not arise.

At an oblast level, the problem of balance is connected with the tasks of the local organs in ensuring deliveries to centralized allocations and satisfying intrinsic needs (including the requirements of the processing industry). How can the behavior of farms in relation to the formation of procurement plans, and in particular the proposal for establishing them at the minimum, that is, extant, level, influence the resolution of this task? Three types of behavior by the farms are possible:

1. The collective of the enterprise that proposed a minimal volume of sales will not strive for growth in commodity output, that is, will halt or decrease the rate of further development of production.

2. The farm will increase the portion of output beyond the plan, but will sell the excess at its own discretion, bypassing the procurement network, for example on the kolkhoz market or through its own trade network.

3. The enterprise will strive to overfulfill the procurement plan beyond the minimal level and sell the excess to traditional procurers.

A combination of all three types of behavior for various types of products on one farm is not ruled out in real life. The behavior of the farms is determined by a multitude of factors: the correlation of procurement, contract and market prices, the possibility of selling production beyond the plan bypassing the procurement network, the natural and climatic conditions, as well as the production and technical ones, for increasing this or that crop and the upkeep of of livestock, the extent of supply with labor resources etc. The action of these factors is already being manifested in the first year of operation under the new conditions. Thus, the farms feel that it is more profitable to sell the meat and milk beyond the plan at procurement prices, while fruits and vegetables are sold on the market or in their own trade network. Instances are encountered of a lessening of the opportunities for procurement of especially labor-intensive products (sugar beets, for example). Phenomena testifying to the first type of behavior, however, have yet to be detected.

The data for Stavropol Kray give a definite representation of actual planning processes under the conditions of the experiment. An analysis carried out by

the Planning and Economic Incentives Sector for the Procurement of Agricultural Products of VNIETUSKh testifies to the fact that for the kray overall the intensiveness of procurement plans (in relation to the level that was extant over the 11th Five-Year Plan) was 100.6 percent. Moreover, in 13 rayons the intensiveness of the plan was higher than the level achieved earlier (a group average of 110.4 percent), while in 13 others it was lower (an average for the group of 91.4 percent). This had practically no effect, however, on the actual amount of products sold to the state in 1986. That is, the intensiveness of the plans had no effect whatsoever on the level of their fulfillment. The farms that received the right to plan independently came to have a cautious attitude toward their capabilities, but not only did not reduce the growth rate of output but, on the contrary, raised it. Gross output overall (in prices comparable to 1983) increased by 26.1 percent over 9 months of 1986, while in the rayons that adopted less intensive plans, it increased by 31.3 percent.

Also typical was the circumstance that the most cautious attitude toward plan intensiveness was manifested by rayons in the first zone, located in the least stable natural and climatic conditions of the kray.

As for the right to sell products at the discretion of the farms, it was used chiefly in the sale of fruits and vegetables. According to a preliminary estimate, their sales in market channels tripled in the kray in 1986.

Although these conclusions are of a preliminary nature and are in need of further research, the predominance of the second and third behavior types can be asserted with a great degree of probability.

It is important to elaborate for our analysis that the appearance of the second type of behavior of farms and the development of the third (earlier observed) are not accidental. These phenomena are the result of the action of the principle of payment-in-kind. Whereas mutual relations apropos of the procurement of agricultural products are constructed in accordance with this principle, this does not signify the obligatory nature of the fulfillment of the assigned volume of sales and at the same time the possibility of having at one's disposal products beyond a certain level. Hence it follows that the procurement plans under the new conditions need not reflect fully all of the capabilities of the farms in the sale of products to the state. The very idea of payment-in-kind consists of the farm having part of the products at its disposal (beyond the compulsory target) that is sold at its own discretion. Their own incentives--contract prices--operate in relation to this portion of output beyond the plan. In order to guarantee the sale of this output, the farm is within its rights to sell it to procurement organizations at procurement prices or to conclude agreements with consumer cooperatives at agreed-upon prices. The enterprise collective, however, can resolve the issue in another way as well--selling the output beyond the plan on the market or through the internal trade network, that is, to adhere to the second type of behavior. By the way, the rayon organs that answer for the supply of foodstuffs to the population can also have a vested interest in this solution. The transfer of output beyond the plan through traditional channels signifies that it will be at the disposal of oblast organs at their own discretion after the fulfillment of targets for deliveries to centralized allocations. Under

these conditions, not only the farms, but also local organizations, will have a vested interest in selling output on the local markets or through the trade network of the agricultural enterprises located in the given rayon, since they justly view this form of sale as a source for improving food supply for the population living in "departmental" territory.

And so, the second and third types of farm benavior are realities conditioned by the action of the new mechanism of economic operation. They cannot be banned or ignored. It should be elucidated how these new phenomena can affect the balance of plans for the sale of agricultural output with the requirements of the population and the processing industry, and measures for ensuring national-economic interests under these conditions should be projected.

It is understandable that in the event of a reduction in the procurement plans, the overall volume of products actually received for consumption (the discussion, we emphasize, concerns the second and third types of farm benavior) does not change, but its redistribution among rayons and, this means, changes in the extent of satisfaction of the requirements of the population of a specific territory are possible. For example, relatively more products will be directed toward supplying the population of a rayon that has considerably overfulfilled the procurement plan compared with other rayons that did not receive products beyond tne compulsory targets. But these changes in supply for the population correspond to the principle of payment-in-kind, which assumes an increase in the responsibility of local organs for supplying the population with food products. The grounding of the compulsory targets for the sale of products to the state will have the greatest significance herein from the point of view of observing the principle of social equity.

Thus, discrepancies between the possible volume of commodity output production and the plan for its procurement are a rightful phenomenon under the new conditions. The whole issue is the size of such discrepancies. The actually needed volume of centralized distribution of agricultural products on the scale of a specific rayon or oblast should be determined, to which the size of the compulsory (minimal) state procurement plans should also correspond. The task of plan intensiveness in the traditional sense should correspondingly be addressed namely to this essential level of state procurement. If the extant (and, this means, compulsory under the conditions of the experiment) or standard volume of the sale of output to the state provides for the essential scale of its centralization, then the problem of intensiveness is removed, at least from the point of view of the balance of sales plans for agricultural products and requirements for them.

The point is that the size of payments-in-kind is not connected with the attitude of the farms toward planning and their striving to conceal reserves. Something else is important--that the procurement plan be coordinated with the resource potential of the enterprises.

Preliminary observations of the experimental sites shows that the second and third types of behavior still predominate in the substitution of centralized planning. This does not signify, however, acknowledgment of the fact of the complete elimination of the problem of plan intensiveness. There are still no

grounds to conclude that their reduction will not have a negative effect on the vested interest of the collective for the maximum utilization of productive potential to increase commodity output production volumes in the needed variety. The complete elimination of this situation requires that the incentive motives conditioned by the system of economic and moral incentives acquire a power of influence on the executives of enterprises and labor collectives that would compensate for the absence of an intensive plan. And although the conditions of the experiment (transition to self-supporting production [samookupayemost], non-expense incentive methods etc.) are a substantial step toward strengthening the effectiveness of the incentives system, it cannot be considered that it is in any condition today to take fully upon itself the whole spectrum of controls for influencing collectives that are employed for the purpose of their adoption and fulfillment of intensive plans.

By virtue of the reasons set forth (and to them should be added the psychology of the executives--"The lower the plan, the more the resources"), it would be premature to reject completely measures of influencing enterprises and their managers for the purpose of their adopting and fulfilling intensive plans. But, at the same time, it is obvious that traditional approaches should be reconsidered. Under modern conditions, fundamentally new measures of influence on the collectives of enterprises and their managers, as well as local organs, are needed.

The chief directions of this restructuring, comprising the basis of the concept of organization of economic relations apropos of the formation and realization of agricultural-product sales plans, are reduced to the consistent assimilation of a standards and resources approach and more flexible methods of economic stimulation.

Especial attention should be concentrated on the standards and resources approach. It should be sustained at all levels: the delivery of products to all-union and republic funds, the planning of procurements by rayon and the passing along of control figures to the farms. The unwavering observance of a standards and resources approach makes it possible not only largely to solve the problem of the intensiveness of plans, but also to ensure the link between the level of economic operation of the given region and the degree of supply of its population with food products.

The realization of a standards and resources approach with substantiation of the volumes of deliveries of products to all-union or republic allocations assumes that they are determined in such a manner that every oblast is assured of a roughly equal degree of satisfaction of the population for food products with the identical extent of utilization of existing productive potential. The difference between the standard volume of products of a certain type and the need to supply it to the population according to an accepted norm comprises the magnitude of the deliveries of output to the centralized allocations or, on the contrary, subsidies from these allocations.

At an intra-oblast level, the realization of a standards and resources approach is based on the same principles. The mechanism for realizing these principles, however, has its own specific features here. Agricultural output

on a scale that would permit the achievement of an average norm for supplying the population with foodstuffs should remain at the disposal of the oblast. This norm is sustained under the condition that the volume of commodity output actually arriving for the oblast overall is no less than the standard adopted in the substantiation of targets for delivery to the centralized allocations. The question arises of how to realize the principle of responsibility of local organs for supplying the population with food products at an intra-oblast level. It follows from the above that it (the principle of responsibility) should also be extended to the rayon level. Consequently, the creation of an oblast allocation must be envisaged from which deliveries to the all-union or republic allocations and the supply of cities subordinate to the oblast are ensured (the subsidies from the all-union or republic funds are also taken into account herein if they are envisaged).

Methods of distributing the products among the oblast allocation and the rayon can differ. First, the residual principle is possible, similar to the way mutual relations are structured between the oblast and the all-union (republic) allocation. Second is a share principle, according to which norms are established for transfers to the oblast allocation depending on the mass of commodity output of the given rayon. Third is a combined version that envisages the compulsory satisfaction of the minimum requirements of the rayon (for children's and medical institutions, schools etc.) and the employment of the residual principle for the remaining portion of output.

The choice of the appropriate variant depends on the specific circumstances: the correlation of the population living in the cities subordinate to the oblast and in rural locales, the effect of oblast centers on the development of the agro-industrial complex, the level of development of gardening cooperatives in oblast cities and the like.

Each one of these, however, is based on a standards and resources approach in the sense that the possible production volume of commodity output should correspond to a standard, while the scale of deliveries to the oblast allocation is determined as the difference between the standard volume of products and the requirements of the rayon for local needs (per the average oblast per-capita norm). Depending on the variant adopted, the targets for delivery are established either as an absolute value or in the form of standard deductions from the mass of commodity output.

A decision is correspondingly made on the minimally essential volume of agricultural products that is subject to centralized distribution by oblast organs. The volume of such products takes shape from the following elements: targets for delivery to the all-union or republic allocation; the requirements of the oblast allocation (supplying the cities subordinate to the oblast with fresh produce and raw materials for processing enterprises on the scale essential for supplying the cities subordinate to the oblast). Furthermore, it is also expedient to regulate through the oblast allocation the minimal volume of products that is transferred to the disposal of the rayon in the combined variant for organizing the mutual relations between the oblast and the rayon apropos of the distribution of agricultural products. It is also expedient to regulate through the oblast allocation those types of products that by virtue of production specialization in the given region are not

produced or whose volume is inadequate to satisfy local needs according to the average oblast norm (eggs, vegetables and the like). In this case, the mutual inter-rayon exchange of products is also possible through the oblast allocation.

The compulsory or minimal amount of state procurements essential in the given oblast that is also subject to distribution among the rayons, and within them among the farms, on a standards and resources basis is determined on the basis of these calculations.

Two standard values are thus determined for the oblast and for each rayon: the overall level of production of commodity output of agriculture by region (including the products of PSF) and the standard amount of state procurements.

The first standard indicator is used to calculate the distribution of products among regions (the all-union or republic allocation and the oblast, the oblast and the rayon). The second is employed to determine state procurements. It is established proportional to the first indicator, but it can be less than it through the mass of products that can be sold at the discretion of the farms.

It is expedient in this regard to introduce corrections into the conditions for formulating state-procurement plans for the experimental sites: the compulsory, minimal volume should be established on a standards basis, and not on the basis of the level that has been achieved.

The standards and resources approach is being extended to relations apropos of material and technical supply and the planning of capital investment. An important factor that has an effect on the behavior of executives in the formulation of plans is the lack of confidence in receiving allocated material resources and the limits for planning and contractor work essential for the fulfillment of intensive plans. Allocated resources (until they are in short supply) will correspondingly appear in the resolution of the given problem not only as means of ensuring the compulsory (standard) volume of procurements, but also as incentives for the adoption and fulfillment of more intensive plans for the sale of products to the state. The oblast and rayon organs, with such an organization of material and technical supply, are acquiring an additional control for influencing the interests of the farms.

Priority goes to state procurements in the distribution of resources. This is especially important for the experimental sites, in relation to which material and technical supply (including resources for capital construction being carried out using the organization's own resources and the limits for planning and contractor work) is a most important lever for having an effect on their interests.

Standard requirements for resources associated with the proposed volume of procurements are provided for in centralized fashion first and foremost. The need for the basic assets and other materials for the observance of this principle is determined with the aid of standards (that take into account an economic evaluation of the land, the extent of supply with basic production assets and labor and other resources).

Mutual coordination of all of the principal parameters of the development of the farm thus takes place in the course of the planning of procurements, capital investment and material and technical resources.

Products intended for sale via market channels (including PSF products) can also be taken into account in determining the requirements for limits of material and technical supply (with the availability of free assets). Another variant of material and technical supply is also possible--reciprocal sales in the transfer of products to consumer cooperatives etc.

The proposed scheme for a "dialogue" between the superior organs and the farms regarding procurement volumes and the development of their material and technical base creates the requisite preconditions for raising the vested interest of the collectives in more objective planning. Enterprises understating their capabilities in the sale of products to the state come to be in an unfavorable position: deliveries of material and technical resources and the limits of capital investment will be reduced for them correspondingly. They will also have a vested interest in the efficient utilization of accumulated productive potential, since only then is the fulfillment of the proposed procurements plan possible.

At the same time, it is also necessary to envisage responsibility measures for those enterprises that, having taken on increased obligations for the sale of products and having obtained additional resources, do not fulfill the plans. In this case, the excess material resources obtained should be counted against the deliveries in a future year. This step should not be employed if the plan for the sale of products was not fulfilled due to spontaneous disasters. In order to simplify accounting, it is expedient to structure them according to the method of increasing totals from the beginning of the current five-year plan. The indicated method moreover should not always be employed in relation to all types of products. Those types of products should be stimulated first and foremost whose supply does not meet the requirements of the oblast. All of the enumerated conditions should be fixed by agreement.

Methods of economic influence on enterprises should also be reoriented. The principal tendency is their effect on the financial results of the farm with the aid of price and financial controls. These measures should be flexible and take the specific situation that has taken shape in the given region into account. Whereas the supply of the farms provides for the need for products subject to transfer to the procurement organs, the application of additional incentives in the form of surcharges over the procurement prices for their sale above the extant level is essential. On the other hand, these incentives are doubtless essential in the event of the discrepancies that are detected at the stage of plan formulation between the requirements for products subject to transfer to procurement organs and the farm supply.

A new approach is also required in establishing the size of surcharges. Under conditions where the enterprise has the opportunity of selecting the channels for the sale of a certain portion of the products, it is not the very fact of the establishment of surcharges, but rather their size, that affects its choice, under which it is economically more advantageous to sell them to the state procurers (the farm, of course, will also take into account sales

expenses in this or that form of sale as well as other factors). In determining the size of the surcharges, the possibility of using output beyond the plan should also be considered. For many types of industrial crops, for example, the farms have no choice regarding the sales channels.

It flows from the aforementioned that neither a list of products subject to incentives nor the size of the surcharges can be unified for the whole country or for union republics with oblast subdivisions. A surcharge fund should be established for each oblast which it would dispose of at its own discretion. In the event the resources in the fund are not used, they can be used by the oblast for other purposes.

A standards and resources approach regarding the surcharges under consideration will consist of the fact that they are paid for exceeding the standard volume of state procurements.

The proposed methods of economic influence are at the same time special incentives for plan intensiveness. In reality, if the size of the surcharge has an effect on the choices of the farms in favor of the sale of additional output to the state (beyond the compulsory standard volume), then the problem of intensiveness, at least from the point of view of plan balance, will be basically resolved. But one aspect of it remains that requires additional consideration. The fact is that the farm can in fact sell an additional quantity of output without burdening itself with contract obligations for the given operation. Additional conditions are called upon to oppose these trends that envisage surcharges for the volume of output (that can be sold beyond the compulsory norm) within the framework of agreements that are already concluded, or a reduction of surcharges for the sale of quantities of output beyond the contract.

At the same time, balanced (through influence on the financial results of the farm) sanctions for the failure to fulfill agreements for the sale of products beyond the plan should be envisaged.

The proposed incentives also have an effect at the same time on the interests of the farm collectives that are operating under conditions of self-supporting production. No special incentives for intensiveness are required in the payment for their labor from the overall total of gross income or from a sole source created through net income.

On farms that are not operating under self-supporting production, the link of the size of the incentives with the financial results is less close and is basically related to the material-incentives fund. Are special incentives for plan intensiveness needed under these conditions that would have an effect on wage payments to enterprise employees? An answer to this question is connected with a forecast of the behavior of the farms under the new conditions.

First of all, it should be elaborated whether such controls as price surcharges will ensure the vested interest of the farms in selling additional output along the lines of state procurement. In the event of a positive answer, the need for special incentives for intensiveness in the organization

of wages, at least from the point of view of plan balance, recedes. If even after the introduction of surcharges the farms prefer to direct additional output along market channels, the need for incentives is not ruled out. But they will be needed only in the event that the real necessity of centralization of an additional quantity at the disposal of the state procurers exists. The conditions for the formation of a compulsory volume of state procurements basically corresponds to these requirements, and therefore the need for similar measures should not be re-evaluated. Tradition can sooner have an effect here--to get hold of all output without exception for state resources.

Forecasting the behavior of farms relative to the channels for the sale of output produced beyond the compulsory volume for state procurement is based on the correlation of procurement (with a regard for surcharges), commission and market prices.

It can be assumed with a great degree of probability that if the procurement prices (taking surcharges into account) are higher or just somewhat lower than market prices, the enterprise will hardly burden itself with the expenses and bother of arranging its own trade. Furthermore, real alternatives should exist to the transfer of products to the state procurers. For a number of industrial crops (cotton, bast etc.) that require processing at special enterprises, such alternatives are lacking. Taking these exceptions into account, it is possible to expect that the need for special incentives for plan intensiveness (aside from those set forth above) will appear for those products that cannot be made profitable at the level that can be achieved in sales through market channels with the aid of supplemental payments in sales to state procurement.

In such a situation, a method of deductions to economic-incentives funds (for the sale of additional products beyond the compulsory amounts) can be effective. These deductions, made from an oblast or rayon dedicated-purpose fund, are higher than those adopted in farm standards and the existing limitations and are "more economical" than the surcharges themselves, since they do not contain elements of profit related to the accumulation fund. The size of the bonus-surcharges is established in such a manner that the sum of additional receipts to the economic-incentives funds is no lower than for the sale of products through market channels. According to our calculations, these bonus-surcharges will comprise roughly 40-50 percent of the difference between the procurement price and that for which the product could have been sold through market channels. Where necessary the bonus-surcharges, as well as price surcharges, can be paid within the limits of the volume of sales envisaged by an agreement, or their size can be reduced in the sale of products beyond the agreement.

Similar measures, however, should be of a temporary nature, insofar as in the transition to self-supporting production the spectrum of the interests of the collective is expanding and is also being extended to the accumulation fund.

There exists another aspect of the problem of plan intensiveness associated with their incentive function. A specific feature of the principle of payment-in-kind is the fact that state procurements do not embrace the entire

amount of commodity output being created by the farm. Consequently, if the problem of the transfer of the necessary quantity of products to state procurement is to be resolved, there remains the open question of the requisite vested interest in the maximum utilization of all productive potential, as well as its development for increasing the production of agricultural output in the necessary assortment. The question consists of whether the incentive-surcharges proposed above eliminate the behavior in which the farms will develop only within the limits necessary to fulfill state procurements.

The answer depends on the methods of stimulating the labor of the collectives and on the specific features of the management of enterprises, who to the greatest extent affect the level of plan intensiveness. Before the transition to self-supporting production, these methods should be based on the direct utilization of criteria typifying the level of utilization of productive potential (the assimilation of the standard level of commodity or finished output, gross or net income). With the correct grounding of these incentives, the necessary orientation of the economic interests of the workers of the enterprises is ensured and special incentives for plan intensiveness, in all probability, are not required. Further research on the behavior of the farms under the new conditions is essential, however, for the adoption of a final decision.

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PARTY EXAMINES ECONOMIC MANAGEMENT TASKS

Moscow PARTIYNAYA ZHIZN in Russian No 9, May 87 pp 40-44

[Article by V. Nikulin: "The Transition to Economic Management Methods--A Political Task"]

[Text] Moscow--The meeting of the active membership of the USSR State Agroindustrial Committee, whose agenda took up the results of the January 1987 CPSU Central Committee and the tasks of the staff party organization regarding the implementing of its decisions, became the central event in the life of the entire collective. The formation of this radically new department a little over a year ago as the result of the abolishing of five ministries (Agriculture, Meat and Dairy Industry, Fruit and Vegetable Industry, Food Industry and Rural Construction) as well as Goskomselkhoztekhnika [State Committee for Supplying Production Equipment to Agriculture], marks the completion of a top-to-bottom reorganization of the country's agroindustrial complex' administration. As is well known, this reorganization was started somewhat earlier than that in other areas of the economy, i.e., after the May 1982 CPSU Central Committee Plenum.

And today, the meeting's participants feel that it is reasonable to ask how well the new administrative organs, primarily the central staff, are handling things. The fact is, in contrast to past years, they have great opportunities at their disposal: not only has the production but the processing, storage and even sales of some agricultural output been concentrated in the hands of a few people within the framework of the agroindustrial complex. Obsolete and outdated administrative forms and methods have been replaced by new management techniques based on an economic management mechanism, and this during a democratization of society. The active Party membership met in order to provide a principled response to the question of exactly how successfully the central staff is coping with its tasks.

In his report to the meeting, First Deputy Chairman of the USSR Council of Ministers and USSR Gosagroprom Chairman V. Murakhovskiy noted that the resolutions adopted by the January Plenum, and the measures for further reorganizing and democratizing state, public and intra-party life and improving personnel policies are creating the preconditions necessary to successfully accelerate the country's social and economic development. Unfortunately, the measures being implemented and the work being carried out

do not yet correspond everywhere to the scope and acuteness of the problems which have accumulated. The mechanism inhibiting social and economic development, which has become entrenched over the years, is only slowly collapsing and giving way, and the influence of conservatism, inertia and outmoded thinking can still be felt.

Both the reporting speaker and the others who spoke at the meeting unanimously supported the decisions of the January Plenum and spoke of the scale of their tasks, which require that every Party member, director and staff specialist be profoundly aware of the irreversibility of this reorganization. The main task of the moment is to act energetically, boldly, creatively and competently.

V. Antonov, partcom secretary of Food Industry organizations told of the huge reserves which have been revealed in the reconstruction process. Thanks to the reorientation of 639 enterprises and shops in the alcohol, liquor and vodka and wine-producing industry, the population has begun purchasing a great deal more juice, alcohol-free beverages and canned products. Last season, city dwellers bought 1.5-fold more fresh grapes than in 1985.

And here is another example that workers from a variety of sectors, who used to suffer from departmental barriers, are collaborating creatively. In 1986, when state sugar beet purchases were reduced by 2.1 million t, 376,000 t more sugar was produced than in the previous season. And all thanks to reduced losses and improved beet quality.

At the same time, speakers directed the attention of the meeting to those instances when the economic management mechanism fails to work, and when staff specialists do not take needed measures. The talk turned to the production of cheaper products which are in greater demand by the population, and which the labor collectives frequently evince no economic interest in manufacturing. Thus, the labor inputs for a confectionery to produce a ton of Korovka candy are 10-fold greater than to make a ton of chocolate bars, and the labor productivity is one-tenth as much in terms of cost. Here, instead of a broad stream of output flowing out the gates of the enterprise, we see instead a trickle of cheap products.

Speakers at the meeting levelled serious complaints against employees of the committee's economic service, headed by USSR Gosagroprom's First Deputy Chairman, Minister A. Iyevlev. They are behind schedule in drawing up normative documents related to changing enterprise collectives over to full cost accounting, self-support [samookupayemost] and self financing, and are giving no method-related help to specialists of the sector's departments. The meeting heard suggestions for a changeover to planning a wage fund based on in kind [naturalnyy] indices rather than cost indicators.

The reorganization of the Gosagroprom management structure is directly tied to changes not only in planning, but also in organizing and stimulating labor, to setting up integrating connections and implementing an investment policy. Fully aware that the changeover to economic management methods is a political task, the speakers asked questions about being bolder in eliminating narrow departmentalism and lack of coordination in the work of the subdivisions.

As reporting speaker Deputy Chief of Animal-Breeding Output Production and Processing Department and Committee Board member V. Demin and other speakers noted, thanks to the present reorganization, positive changes are underway in the development of agriculture. In recent years static occurrences have been overcome to some degree, and grain, potato, vegetable, meat, milk and egg production has increased.

These indices were shown to the meeting: gross agricultural output volumes exceeded R219 billion in 1986, which is 9 percent higher than the average level for the last five-year plan period. Commodity output for processing sector enterprises for this period grew by almost 5 percent, boosting its growth rates by almost 2-fold higher than before.

The rural economy has grown noticeably stronger, there are fewer unprofitable farms, and the costs of producing output nave diminished. On the whole, USSR Gosagroprom has earned almost R37 billion in profits, including over R25 billion from agriculture.

However, there were also cases of a negative nature in the report and in the speeches made at the meeting. Despite the increased production, the plans for state purchases of grain, sugar beets, flax and oil producing crops, particularly sunflower seeds, were not fulfilled last year. Over 30,000 enterprises, 7,000 of them agricultural, finished up the year in the red. The reimbursement factor for mineral fertilizers is intolerably low, and feed outlays per unit of stock-breeding output are extremely high. The projected yield from farm crops was achieved on only one third of our reclaimed lands.

Party activists feel that this lag can only be explained by a lack of cooperation and a slipping of the economic mechanism. And Gosagroprom specialists and directors are most at fault here. Gosagroprom departmental employees have failed to make an in-depth analysis of the local state of affairs, have shed no light on flaws in the economic activities of its enterprises and have not found the reasons for the lags and slump in the financial situation. They are doing a poor job of summarizing and disseminating the experience gained in using collective, domestic and private contracts, and in the overall effort of the agroindustrial committee to introduce progressive forms of labor organization and incentives. And the need to review current recommendations, and devise models of labor collectives for the country's different zones is long overdue.

It was recommended tnat Gosagroprom's management take decisive steps everywhere this year to start taking wages from gross income, to award bonuses to collectives for reducing direct costs, and to make effective use of pay in kind. It is also crucial that an efficient program for gradually changing all enterprises and organizations to self-support and self financing be prepared, and that new production systems be devised.

What exactly needs to be done to consolidate and multiply our initial successes, and to impart tremendous dynamism and stability to the development of the agroindustrial complex? As those at tne gathering emphasized, the answer to this question was provided at the January 1987 session of the CPSU Central Committee, which discussed urgent measures for increasing agricultural

labor productivity by using rational forms for organizing the sector, and changing it to cost-accounting. Gosagroprom employees need to implement large scale measures oriented towards new approaches to the practice of management and administration.

The essence of the staff's work, as emphasized by the reporting speaker, lies precisely in reorganizing the entire economic mechanism and changing over to economic management methods. This is a political task. It is a case, if we take the close-up view, of establishing self-regulating economic systems which, as if automatically, with the help of quotas and other economic levers, maintain mutually advantageous relations among the enterprises, as well as between enterprises and the state, and coordinate their interests in producing good final results.

The center of attention of Gosagroprom specialists and all Gosagroprom employees must be occupied by man--he who labors in the fields and on the farms. It was precisely to this human factor, and to the work with the labor force that CPSU Central Committee Secretary V. Nikonov devoted his address. He directed the attention of all those present to the fact that out of the multitude of problems, we need to select the most urgent, since solving them would most quickly bring success to the matter at hand. It is crucial that we not be restricted to talks and discussion, but that we expose the abyssal formations, that we travel the path of accelerated development. The solving of three problems united by their content--the changeover to the collective contract, cost-accounting controlled by writing checks, and intensive farming production methods--needs to be brought to the soul of every man, so as to make him fight actively for reconstruction and advance with a united system. In the tiller of the soil we should always see a man who is his own zealous master. Then we will be more successful in solving the problems of the Food Program and our work will be judged by specific deeds and by the foodstuffs on the store counters.

It was suggested that the party organization exert more control over the work of the staff, and make every party member more responsible. The Gosagroprom party organization is made up of 105 shop-level organizations, 64 of which have the rights of primary organizations. Party committees have been formed in three of the largest subdivisions, each of which has over 300 party members on its rolls.

The problem of improving personnel work and the rallying of the united, stable and monolithic USSR Gosagroprom collective remains the number one problem for the party organization. This was the subject of a discussion led by Chief of Personnel Administration and USSR Gosagroprom Party Committee member V. Golovko, and Sector Chief of the Department for Capital Construction and Renovation and Party Bureau Subdivision Secretary N. Yakovleva. They feel that there is a lack of cooperation and still a lot of confusion in the work of the committee subdivisions. Some workers, coming from abolished ministries, have brought an obsolete style and outmoded management methods along with them. Gosagroprom has not yet set up a unified supply service or an organization for delivering material and technical resources to kolkhozes, sovkhozes, processing enterprises and construction projects.

The work to provide services to the agroindustrial complex's enterprises is proceeding along the same well-worn old rut. The devotion and propensity for bureaucratic rule and narrow departmentalism are making themselves felt.

Wholesale trade and trading in goods on commission are developing slowly. As the farms change over to self-support and self financing, the distributive, "ceiling" mechanism has been found to have outlived its usefulness. The party members--Deputy Gosagroprom Chairman and Main Administration for Material and Technical Supply Chief A. Lyapchenkov and his deputy L. Pozdnyakov should do more studying of market conditions and demand, and in the process, should pressure manufacturing plants to set up a system of trade fairs, where the farms can be granted the right to select needed equipment.

Deputy Chairman and Chief of the Gosagroprom Mechanization and Electrification Department V. Chernoivanov and his department's Party members, as noted in the report and speeches, obviously need to proceed on the basis that under the new system the mechanization service of the entire agroindustrial complex needs to be tuned up, not just that of the agricultural sector.

Similar wishes were also directed at the meeting to the party organizations and individual party members from other Gosagroprom departments and administrations. The party aktiv's particular attention was directed to the need to strengthen executive discipline and improve the quality, efficiency and coordination of the staff's work. There are a great many shortcomings here as well. Last year, one out of ten tasks was carried out behind schedule, as was roughly every fifth assignment in the fruit and vegetable production and processing department and the potato production department.

As was the case in the abolished ministries, departmental approaches are flourishing in the Gosagroprom staff, and are being used to solve a number of problems, and this is beginning in spite of the decision of the Gosagroprom Party Committee for subdivisions to correspond. Duplication of work, bureaucratism, formalism and a callous attitude toward workers' letters are also being tolerated.

A. Serkov, chief of the Main Administration for Planning the Agroindustrial Complex's Social and Economic Development and a party member, gave this example at the meeting: the main administration's collective had no time to report back to the Gosagroprom administrative department on their execution of orders and other commissions. They were required to do this concerning every item, and in writing, by the main control inspectorate. The question arises: why? This sort of red tape actually uses up a great deal of specialists', directors' and subdivisions' time. At the same time, the committee subdivision has been receiving the documents verifying execution of tasks behind schedule.

The turnover of paperwork, even though it has been reduced to half its volume compared to what it used to be under the abolished ministries, is still too great. The USSR Gosagroprom staff receives about a thousand documents every day, and sends out over 500.

The speakers addressed the paramount problem of enhancing the organizer's role of USSR Gosagroprom specialists. At present, they have a very negligible

effect locally. By spending vast amounts of time on paper work, specialists from the departments for introducing and propagating the achievements of science and advanced experience, the capital construction and renovation departments, the main administration for planning the agroindustrial complex's social and economic development and the state inspectorate for procurements and output quality very seldom go on out-of-town work assignments and know nothing of the state of affairs in the republics or oblasts, or on the farms.

Meanwhile, these places need specialists badly. Cost accounting, particularly when used with check controls, collective contracts and intensive farming and production methods are being introduced very slowly. Following the All-Union Conference in Belgorod, work in this direction was revived, but it was pervaded with a great deal of formalism and deception. And just as important, many of the local farm managers and specialists often fail to look into problems of the economy, do nothing to improve their working methods, and have been made less responsible for their actions. For example, half the chairmen of district agroindustrial association councils in the Rostov Oblast failed to pass certification, and were allowed to go to work anyway. In Central Asia, all the specialists in entire oblasts are studying from obsolete textbooks. And for some reason, new developments are failing to show up here.

Many of the speeches delivered by the participants of the meeting of the active party membership demanded that each specialist be made more strictly answerable for organizing affairs in the section entrusted to him. Each subdivision's party organizations must have a more active influence on developing new types of specialists. It is crucial that each chief specialist has a perfect knowledge not only of production methods, but of the economy and advanced domestic and foreign experience, that he shows greater initiative and persistence in executing the tasks assigned him and that he bears full responsibility for the working sections entrusted to him.

USSR Gosagroprom's sectorial departments have at their disposal an entire network of scientific research institutions, planning and design and technical organizations, scientific production associations, experimental farms as well as seed-production farms. These facilities employ a vast army of scientists and experienced workers. However, there is still no excellent creative interaction between science and the staff specialists here, nor a crucial turning-point in the work they do together. Hence the poor yield.

In Belorussia and Lithuania, the yield for grain crops farmed by intensive methods turned out to be some 13-16 quintals per hectare lower than projected. And grain growers in the Mordovian and Udmurt ASSRs and the Ryazan, Tula and other oblasts of the RSFSR were even lower than their projected yields. The situation with oil-producing crops is particularly intolerable. In this regard, the meeting of the party membership placed demands on the following Party members: USSR Gosagroprom Deputy Chairman and Chief of the Department for Production and Processing of Crop Growing Output G. Romanenko, and Deputy Department chiefs A. Zholobov, S. Borshch et al.

The economic mechanism, it was noted, is not meeting the demands put on it for making the changeover to a shop-level administrative structure in the kolkhozes and sovkhozes, to cost accounting, to contracts, or to paying

managers' wages based on the gross income. The scientific institutions affiliated with VASKhNIL [All-Union Academy of Agricultural Sciences imeni Lenin], which include the All-Union Scientific Research Institute for the Agricultural Economy, where Director V. Boyev resides, and main Gosagroprom administrations, i.e. those for economic planning and personnel, as well as sectorial departments, failed to promptly provide the experienced workers with recommendation on how to deal with these problems. The speakers called upon staff specialists to collaborate with scientists, as individual regions have done, by more boldly working up models of the economic mechanism and summarizing their experience in the work of new units, such as agroindustrial concerns, agricultural firms of the Adazhi type and production associations operating on cost-accounting and self financing.

According to those at the meeting, it is possible that there is some point in changing some RAPO [District Agroindustrial Association] normative documents so as to increase the role played by their soviets and specialists. VASKhNIL President A. Nikonov is frequently and justly critical of the RAPO's in this regard. Unfortunately, neither he himself, nor the other economic scientists have any concrete suggestions to make. In the final analysis science, along with Gosagroprom specialists, must attempt to develop an optimal RAPO model.

At the meeting, it was deemed advisable to certify Gosagroprom staff specialists in 1988. In so doing, emphasis must be placed not only on theoretical knowledge of the subject, but also on knowing how to organize the assigned job.

In its resolution, the meeting intends in particular to come to a crucial turning point in the work of the Gosagroprom staff, relying on economic management methods to set up the work of local agencies so that by introducing intensive farming and production methods we can harvest 20-22 million more t of grain and one million more t of oil-producing crops this year than were brought in last season, can solve the problem of producing vegetable oil, sugar and groats, and can deliver a wide assortment of high-quality products to our industrial centers.

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CULTIVATION OF STRONG, DURUM WHEAT IN ORENBURG OBLAST

Grain Procurement Problems

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[Article by A. Kryucnkov, head of the Grain and Seed Production Technology Department of the Yuzhnyy Ural Scientific Production Association, candidate of agricultural sciences: "Strong and Durum Wheat in Orenburg Oblast"]

[Text] Throughout the long history of steppe farming Orenburg wheat has been famous for its high quality. The gold medals of world's fairs at the end of the last century attest to this.

For the sake of fairness it should be stated that even today it is possible to find samples of durum wheat for presentation at a fair of any level. However, the organization of large-scale mass production of nigh-quality grain, while retaining special requirements for it, has proved to be a complex matter.

During four five-year plans (1961-1980) average annual purchases of strong and durum wheat in Orenburg Oblast increased from 77,500 to 710,800 tons. During the 11th Five-Year Plan they totaled 183,000 tons.

Expanding the area sown with strong and durum varieties from 442,100 (1961) to 2,569,000 hectares (1983) contributed to an increase in the volumes of procurement of highly valuable grain. Their share in the harvest increased from 20 to 93 percent of the total gross output of wheat. Since 1976 areas sown with strong and durum wheat have exceeded 2 million hectare and gross grain output, 1.4 to 2.8 million tons.

At the same time, neither the expansion of sown areas, nor the increase in the gross output of strong and durum wheat grain, has made it possible to solve the problem of a stable procurement of grain conforming to the standards.

Moreover, a tendency toward an increase in the gap between production and procurement volumes appeared during the last three five-year plans (1971-1982). More strong and durum wheat began to be produced in the oblast, but procurements of high-quality grain conforming to the standards decreased.

The reasons for the situation that has been created are quite varied and diverse. In the process of their analysis it has been established that durum wheat plays the basic role in high-quality grain procurements in the oblast. The reduction in the areas sown with these varieties in one-half (from 920,000 hectares during the 9th Five-Year Plan to 448,000 during the 11th Five-Year Plan) has led to a corresponding decrease in purchases. At the same time, expanding areas sown with strong wheat 2.5-fold has not produced any significant increase in high-quality grain purchases.

However, the transition to the sowing of strong, instead of durum, wheat cannot be considered erroneous, because strong wheat in steppe zones exceeded and still exceeds durum wheat in the yield and contributed and still contributes to an increase in gross grain output. However, the opposite was true in the forest-steppe zone: Durum wheat surpassed strong wheat in the yield, which led to a relocation of the sowing of durum wheat from steppe regions to the forest steppe with a simultaneous deterioration in qualitative grain indicators throughout zones. This process is especially noticeable in south-western, southern, and central zones.

In the oblast measures have now been taken to expand the sowing of durum wheat in steppe zones. This becomes possible owing to the appearance of a number of more productive varieties pertaining to local Orenburg selection. Their introduction is one of the ways of increasing durum wheat procurement volumes.

The situation with the production of strong wheat grain is much more complex. During the last 20 years strong wheat has been stably procured only in the oblast's east and in the trans-Ural area. In the south procurement volumes have declined gradually, in the center they have been reduced to less than one-third, and in the oblast's north, west, and south-west procurements are hardly carried out.

What has happened? An in-depth analysis has made it possible to uncover certain tendencies in the development of this process. The introduction of Saratovskaya 29 strong wheat began on the entire territory in the oblast during the 7th Five-Year Plan and Kharkovskaya 46 began to displace Gordeiforme 189 and Melyanopus 69 durum varieties by the middle of the 1960's.

The proportion of areas sown with these varieties was not big. The bulk of the fields was occupied by weak low-yield wheat (Albidum 43 and Lutescence 62) with a shorter vegetative period. Its earlier harvesting contributed to early fall plowing and its smaller consumption of nutrients created better conditions for the restoration of field fertility during the fall period. Furrow land under perennial grass was plowed during the same 5-year period. On the whole, it can be considered that the provision with nutrients was formed positively, without a significant disturbance of the humus balance.

The structure of the sown area was also more favorable. Areas sown with spring wheat occupied only 47 percent in the structure of arable land. Winter crops, millet, and industrial and fodder crops served as predecessors for it. The fallow field occupied 11 percent of the arable land. Field crop rotations contained up to two fallow fields, one or two winter crop fields, one and a

half to two row crop fields, and up to one perennial grass field. One field of grain crops was placed for the second time. Spring crops were sown on developed virgin land 2 or 3 years in succession only in the oblast's east. That is, agricultural production in the Orenburg area, having a substantial fertility potential at its disposal, was able to increase the production of valuable grain.

The 8th Five-Year Plan was noted for a rapid procession of a whole range of strong wheat pertaining to the Saratov selection (Saratovskaya 29, Saratovskaya 210, Saratovskaya 38, and Saratovskaya 39) and of Kharkovskaya 46 durum wheat, whose areas reached 1.7 million hectares in 1968.

The extensive introduction of the sowing of durum and superstrong varieties stably forming a high quality of grain proved to be favorable for attaining the highest indicators of high-quality wheat procurements. However, the total increase in the yield of wheat during this 5-year period (of 4.2 quintals per hectare for durum wheat and of 3.3 quintals per hectare for strong wheat) led to an increase in the removal of nutrients. At the same time, the influx of fields with high natural fertility decreased markedly. The saturation of crop rotations with two or three secondary wheat fields (center, south, and east) began simultaneously. The clean fallow field was replaced with an occupied fallow field and a "wandering" winter crop field appeared. On the whole, the crop rotations being developed became poorer in the set of spring wheat predecessors.

During the 9th Five-Year Plan the repeated sowing of wheat, including of strong wheat on strong wheat, and the occupation of fallow with grain crops was initiated during favorable years. Negative consequences of the widespread sowing of durum wheat appeared (root rots, floral mite, and so forth). More productive medium-ripening and medium-late varieties appeared on the oblast's fields. The Saratovskaya 42 variety in the west, in the center, in the south, and, partially, in the east of the Orenburg area displaced less productive varieties of strong and weak wheat. Kharkovskaya 46 fully replaced less productive durum wheat varieties. The basic sowing of durum wheat was relocated from steppe zones to the forest steppe (66 percent) and of Saratovskaya 29 superstrong wheat, to the oblast's east.

The disruptions in crop rotation, depletion of high natural fertility sources, introduction of more productive medium-ripening varieties, transfer of durum wheat from zones, where a high quality was formed, and of the Saratovskaya 29 superstrong variety to the oblast's east, delay in the fall plowing time, and insufficient level of nutrient return from organic and mineral fertilizers with a general growth of the yield and gross output of grain led to a worsening of the humus balance and to a disproportion between the need of durum and strong wheat for nutrients and their availability in the soil.

All this taken together disrupted the basis for the production of high-quality grain in the oblast. Central, western, and southern regions sharply reduced its procurements.

During the 10th Five-Year Plan (1976-1980) the oblast's farms changed over to the continuous sowing of strong and durum wheat varieties. The share of their

average gross output reached 93 to 94 percent. However, the negative factors affecting the deterioration in quality during the 9th Five-Year Plan did not disappear, but even intensified owing to the fact that in individual regions the fallow wedge was reduced to 1-3 percent.

During the years of the 11th Five-Year Plan the oblast's farms have done significant work on improving the structure of sown areas. Clean fallow areas have been brought up to the optimal level envisaged by farming systems, the set of good spring wheat predecessors has been improved significantly, the sowing of durum wheat is expanding, and the process of active introduction of intensive technologies of its cultivation has begun. Thus, a good reserve for an increase in high-quality grain production has been created. However, the problem has not yet been eliminated.

An analysis of mass data on the quality of grain throughout the oblast's zones has made it possible to uncover the basic criteria of its deviations from state standard requirements. First of all, they include a lowered gluten quality group with a high content of gluten under the conditions of the oblast's west, center, south, and east; a lowered voluminous grain mass in the oblast's north and south and, during dry years, in the center and in the west; an insufficient content of gluten in grain (usually in the north), as well as on the oblast's remaining territory, during rainy years.

In 1985 we examined data on the quality of Saratovskaya 42 strong wheat grain in 164 batches of a total weight of 10,000 tons procured by the Orenburg Grain Receiving Enterprise.

According to these data, neither the grain moisture (14.8 percent), nor the weedy admixture (2.4 percent), nor the grain admixture (4.6 percent), nor the volume-weight (754 g/l) affect the gluten content and IDK-1 indicators (there is no correlation, or it is weak).

Only one out of all the batches taken showed 28 percent of gluten of the first quality group. Throughout the central zone in 1968-1980 the State Grain Inspectorate examined 181 large batches of strong wheat, 25 percent of the grain of which had the first quality group and 75 percent, the second. There were no batches with 32 percent of gluten of the first group and batches with a content of 28 to 31 percent and of the first group comprised only 9 percent. Yet those were years of the biggest high-quality grain procurements. With respect to durum wheat the situation was more satisfactory. There 82 percent of the batches had the required second quality group and more than one-fourth of them contained 28 percent of gluten and almost one-third, 25 to 27 percent.

According to our data (1977-1979), different spring wheat varieties remove a dissimilar quantity of nutrients per quintal of grain. The Albidum 43 variety utilizes 2.32 kg of nitrogen per hectare and 0.66 kg of phosphorus, Saratovskaya 42, 2.21 and 0.70 kg, Orenburgskaya 1, 2.19 and 0.63 kg, and Knarkovskaya 46, 2.49 and 0.95 kg per hectare respectively.

It can be assumed that, if the removal of nutrients remains at this level, with a yield of 40 to 50 quintals per hectare, which is projected by selection programs, grain alone will remove 88 to 110 kg of nitrogen and 30 to 38 kg of

phosphorus from arable land. Therefore, new varieties will not besatisfied with nutrients available in the soil.

Such a phenomenon is already known. Today it is observed with Mironovskaya wheat, whose need for food is not met on a single type of soil. At the same time, the recommended doses of nutrients ($N_{40}P_{60}$) in Orenburg Oblast do not compensate for their removal under the conditions of transfer to intensive technologies, because they are oriented toward stocks of allocated fertilizers. The application of fertilizers to high-yielding varieties in the same quantities as to extensive ones leads to the starvation of productive varieties.

At the same time, it should be noted that in Orenburg Oblast the increasing shortage of nitrogen in the soil is connected with the destruction of humus. On the average, humus losses in the arable layer annually reach 0.09 to 0.05 percent and in the underground layer, 0.06 to 0.01 percent. The planned rates of nitrogen fertilizer application (from 7.4 to 10.9 kg per hectare) do not cover the alienated quantities (12 to 30 kg per hectare) two- or threefold. The development of intensive-type, new varieties will aggravate this process even more. There is a need for the further search for ways of overcoming the shortage of plant food.

Selection contains a very important potential for improving the quality of wheat. The development of strong spring wheat varieties possessing the ability to stably form the first gluten group required by the standard (with its content of 30 to 32 percent) can become one of the ways of solving the quality problem.

The results of our research (1976-1982) on the role of 68 agricultural backgrounds in the formation of the harvest and quality of grain of four spring wheat varieties have shown that by means of an efficient combination of the predecessor and of the nutrient dose of the basic fertilizer (NPK) it is possible to obtain higher harvests with a good quality of grain in terms of a whole number of signs.

According to average data for 1976-1979, the Kharkovskaya 46 durum wheat variety on black fallow fertilized with P_{40} and $N_{40}P_{40}K_{40}$ can ensure a grain harvest in the oblast's center at the level of 22.3 to 23.2 quintals per hectare with a first-grade quality according to the All-Union State Standard. Against the background of nonfallow predecessors (corn for silage and soft and durum wheat) under the effect of high fertilizer doses (up to 120 kg of the active NPK substance) the yield and content of gluten increase. Glassiness and the volume mass exceed standard requirements, but the gluten quality group does not improve and this indicator can be the main sign of rejection of durum wheat grain with high doses of mineral food applied to fallow.

The Saratovskaya 42 variety included in the list of strong wheat in the middle of the experiments formed gluten with the quality of the first group against the background of application of $N_{80}P_{80}K_{80}$ on black fallow, at the same time, ensuring the highest yield (35.6 quintals per hectare). On the remaining 67 studied agricultural backgrounds the formation of the first quality group was noted only once during 4 years of experiments and was determined by the

characteristics of conditions in the season, not by the effect of studied factors.

An interesting feature was disclosed. On the fallow predecessor with an increase in NPK doses (two- to threefold as compared with previously recommended ones) in this variety the elasticity of dough decreases, its extensibility increases, and the flow strength indicator deteriorates systematically (from 267 to 212 J.). This fact indicates that the variety itself and its characteristics become a limiting factor.

On the predecessor corn for silage the flour strength increases against the background of a single dose of $N_{40}P_{40}K_{40}$ and meets the requirements (284 J.) and, when fertilizer doses are doubled and tripled, a systematic drop in the index to the control level and below (254 to 252 J.) is observed.

During the secondary sowing of Saratovskaya 42 against the background of a single, double, and triple NPK dose, strong flour (285 to 292 J.) is formed, although the grain gluten quality group in these variants does not meet the first group. When Saratovskaya 42 is sown after durum wheat with an increase in NPK doses, a rise of 2 to 28 J. (up to 266 J.) in flour strength indicators is observed. However, according to average data, strong flour is not formed.

Our research makes it possible to assume that the problem of forming strong grain meeting the requirements of indicators specified by the All-Union State Standard cannot be solved only through the establishment of high agricultural backgrounds at the expense of basic macroelements. There is a need for the further search for varieties and methods determining these indicators. Experience in the application of intensive technologies in 1985 has shown that this is one of the most important means of increasing the output of high-quality grain.

According to generalized production data, most of the 78,500 tons of Saratovskaya 42 spring wheat grain grown according to intensive technology contained from 28 to 32 percent of gluten and 54.4 percent corresponded to the first quality group. At the same time, only one-half of the 70,300 tons of this variety's grain grown on fields with ordinary technology contained from 28 to 32 percent of gluten and only 5.2 percent had the first gluten quality group.

Intensive technology also made a good showing during the cultivation of durum wheat. For example, durum wheat grain with a gluten content of 32 percent and of the second quality group was grown on 250 hectares on the Kolkhoz imeni Sotnikov in Sorochinskiy Rayon. For the grain sold a 100-percent markup, on the Druzhba Kolkhoz in Buzulukskiy Rayon a 70-percent markup, and so forth were obtained.

Rendering the application of intensive technology its due, it should be noted that we also overlook factors, which should still be modified with due regard for the diversity of soil and climatic conditions not only of zones, subzones, rayons, and farms, but of individual fields as well. A simple transference of recommendations checked under conditions not characteristic for the local climate lowers the efficiency of intensive technologies.

The solution of the mentioned problems will contribute to an increase in the production of high-grade durum and strong wheat grain on the oblast's farms.

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Decline in Grain Production

UDC 633.1.003

Sverdlovsk URALSKIYE NIVY in Russian No 3, Mar 87 pp 8-9

[Article by K. Martens, chief of the plant growing department: "The Farmer's Pride"]

[Excerpts] In the Orenburg area it is customary to give a round loaf of light wheat bread as a gift to guests. People say that it has many amazing properties. It is not accidental that a gold medal was awarded to Orenburg wheat at the world's fair in London during the past century. This is natural: The Orenburg area is one of the few places on the planet, where, owing to bioclimatic conditions, high-quality, primarily durum, wheat suitable, in particular, for the preparation of macaroni, including such as Italian spaghetti, can ripen.

However, during recent years areas sown with durum wheat have been reduced by a factor of 2.5 as compared with the 1971 level. Naturally, its production volume has also declined. During the 11th Five-Year Plan, on the average, plans for purchases of high-grade durum wheat were annually fulfilled only 11 percent, and of strong wheat, 53 percent. In 1984 only 600 tons of high-grade durum wheat grain was stored in state bins. The relatively low durum wheat harvests are the reason for such a situation in the presence of such high grain qualities. In the search for facilitated ways of increasing gross grain output kolkhozes and sovkhozes began to reduce the sowing of durum wheat.

The oblast agro-industrial committee, kolkhozes, and sovkhozes have been subjected to sharp criticism for lowering grain production volumes. Serious conclusions have now been drawn. The increased attention to an improvement in the quality of grain made it possible to significantly increase deliveries of strong and high-grade durum wheat to the state last year. A total of 481,200 tons of wheat strong in its quality were delivered--this was 150 percent of the plan. Procurement organizations received 401,000 tons of high-grade durum wheat (100 percent of the state assignment).

The attained indicators are not accidental. For the purpose of fundamentally improving the production and procurement of strong and durum wheat grain, specific measures for the entire 12th Five-Year Plan have been mapped out and are being implemented. Clean fallow has been restored to its rights. Volumes of durum and strong wheat purchases have been assigned to farms in all rayons. Durum wheat is sown only on the best predecessors in crop rotation.

In the oblast in 1986 areas sown with wheat occupied 2,033,600 hectares, including strong wheat, 1,403,600 hectares and durum, 550,000 hectares. Areas

under durum wheat were increased by 190,000 hectares, as compared to the 1985 level, as a result of moving it to southern and eastern regions, where there are optimal conditions for the formation of high-quality grain.

Much attention began to be paid to the application of advanced technologies. In the oblast grain crops were sown according to intensive technology on 550,000 hectares, of which 164,300 hectares were allocated for durum wheat.

The optimal sowing time and seeding rates are important factors in the technology of durum and strong wheat cultivation. The third 10-day period in April and the first 10-day period in May is the best time for the placement of durum wheat seeds. It has been disclosed that the early time for the sowing of durum wheat (during the third 10-day period of April or even earlier) is the most effective during years with a shortage of moisture in the soil, as well as against the background of nitrogen fertilizer application. When this operation is delayed for certain reasons (sowing during the second 10-day period in May), such methods as an increase of 15 to 20 percent in the seeding rate and the application of phosphorus fertilizers are advisable.

A skillful application of mineral and organic fertilizers and their full doses acquire special significance for an increase in the yield and improvement in the quality of durum wheat grain. In our oblast the yield of spring wheat under the effect of fertilizers increases by 1.5 to 3 quintals per hectare and more.

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WEATHER, GRAIN CROP CONDITIONS IN KRASNODAR, STAVROPOL

Stavropol Grain Yield

Moscow ZAKUPKI SELSKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 11, Nov 86 pp 10, 11, 14

[Article by A. Kudelya, Director of the Stavropol Kray Production Administration of Grain Products: "Large Stavropol Grain Yield"]

[Excerpts] The village workers of Stavropol Kray have made their contribution to fulfilling the tasks established by the 27th CPSU Congress. Already by 25 July they fulfilled the first commandment before the state. Over 1,920,000 tons of grain, as compared to the planned 1,900,000 tons, were delivered to elevators and grain-reception points. Ninety six percent of total wheat deliveries consisted of high-quality strong and more valuable varieties. The sale of grain to the state continued. This is a great victory for the kray's workers. All Stavropol workers belonging to the grain conveyor readied themselves seriously for this.

This year weather conditions did not please farmers. In many regions reserves of productive moisture were critical during the grain-maturation period. In April, May and June there was significantly less precipitation than during the preceding years and total active temperatures were greater than the long-term average.

Extensive work in grain fields contrasted to the capricious weather. Work to raise grains according to intensive technology was carried out on 900,000 hectares. RAPO [Rayon Agro-Industrial Association] specialists worked creatively on the selection of sites, the preparation of the soil, the application of organic and mineral fertilizers and the improvement of the variety composition of winter barley and wheat. Applied to grain fields were 150,000 tons of mineral fertilizers and 6 million tons of organic fertilizers.

All of this has enabled us to produce 27.1 quintals of grain per hectare as compared to the planned yield of 24.2 quintals per hectare. The largest yields were achieved in Kirovskiy, Kobucheyevskiy and Novoaleksandrovskiy rayons--37.7, 34.7 and 34.4 quintals of high-quality grain per hectare

respectively. Moreover, in Kochubeyevskiy Rayon 48,500 tons of grain were procured from strong wheat varieties, which comprised 84 percent of the total volume of wheat sold to the state.

The workers of enterprises in the Stavropol Kray Administration of Grain Products are proposing specific measures to implement it with the goal of dealing as quickly as possible with the tasks assigned by the party. This will be a worthy contribution by procurers to the country's Food Program.

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Harvesting Operations Begin in Stavropol Kray

Moscow IZVESTIYA in Russian 3 Apr 87 p 2

[Article by V. Oliyanchuk, Stavropol Kray: "The Harvest Begins Today"]

[Text] For a while Ivan Pavlovich Nosatenko, senior agronomist of Zavety Ilicha Kolkhoz of Grachevskiy Rayon, looks silently at the units belonging to Viktor Kononov's link as they move across the fields. I already know that the links of Kononov and Tokarev were first in the kolkhoz as well as in the kray to begin spring field work.

"Others envy us, you say?" says Ivan Pavlovich. "For what? Because we began harvesting operations earlier than others? I think that other kolkhozes and sovknozes in the kray are also working selectively in this manner. After all, no one as yet has been able to recover lost time."

"Let's compare, Ivan Pavlovich. Let me remind you of a meeting 2 years ago. Spring was starting and we spoke with your chairman, Vasiliy Andreyevich Rydnin, about the "movement into spring," and he was so nervous that he could not answer my questions. He just noted, "During my 20 years as chairman there have never been such problems..."

"Yes, that was a time of real problems--the winter crops had perished, we had to resow everything and there was a shortfall in production. The main reason for this was not only the severe winter, although we should not forget to consider weather conditions. But grain farmers still have strategies and tactics. With our agronomic direction Kononov's and Tokarev's cotton farmers "found" sections of land where the soil had matured. And after all, snow still covers most fields. The same is true for the entire rayon and for the entire kray. Usually by this time farmers have totally completed the sowing of early spring crops, whereas today we are just barely finding possibilities for selective harrowing and sowing."

I was told in the krayagroprom committee that there were 1,133 mechanized complexes waiting on the kray's starting line and that all equipment had been readied long ago for field work.

"It has been tested and proven through practical experience--sowing as well as

harvesting-transportation complexes, and Stavropol is their primogenitor, enable us to carry out operations efficiently. In our kolkhoz," notes I. Nosatenko, "equipment has recently gone into the hands of specialized contract links. This is the tactical side dictated by strategy--by the selection and introduction of progressive technologies. If we speak of grain production, the main source of the harvest is the winter field. Here 3,000 hectares of winter crops are cultivated according to intensive technology--this guarantees an addition to the harvest. In the spring we sowed into dry ground, frosts did not by-pass us, but there will be no resowing! Almost all fields are in good condition.

We also speak about "being lucky--being unlucky." Two years ago there was complete resowing. Now we will be able to manage almost without any resowing of winter crops, and this is at a time when in the kray as a whole about one-third of crops must be resown. It is not difficult to imagine how stress increases. And here too the weather has postponed the start of work...

The following tactics have been developed: The area in corn for grain, barley and groats crops is increasing--the grain balance must be adhered to. Sowing complexes and links have been equipped with powerful tractors and will work in two shifts. The kray's enterprises have been supplied with an additional quantity of seed, fuel and to a certain degree with spare parts for equipment. The entire agronomic service, with the considerable cooperation of scientists, is carefully observing every section of winter crops and the condition of the land that has been earmarked for spring crops.

As before, great hopes are being placed on the fields where intensive technology is used to raise winter crops. Nostanko feels:

"Of course intensive technology is not a panacea for all grain-farming problems but we cannot do without it. Its strength is demonstrated only when we do not tolerate even the slightest deviations from the programmed work complex. We have been able to adhere to all requirements "from" and "to" since last summer. Herein lies the entire secret for preserving winter crops today."

The agronomist is correct. Last year the largest yields were produced in those places where the requirements of intensive technology were adhered to fully. What about now?

Almost all of the seed used in sowing winter fields belonged to the first class category. For the future we procured seed of spring crops belonging to that same quality category. But now, with a consideration of the unusual spring circumstances there is a shortage of such seed; sowing material arriving from other parts of the country is examined in seed control laboratories and only after this is it allowed "access" to production plots. Additional fuel is being supplied. But there is a shortage of motor oil.

However, errors in adherance to technology which have prevented someone from making progress are one thing. But violations of technology due to a shortage of the very essentials is quite another. Not everything is going well in the kray at the present time. "Intensive fields" have received only 60 percent of

the phosphorus fertilizer they need. The observations of scientists and practical workers convinces us that winter crops require resowing on precisely those fields which turned out to be shortchanged. An incomprehensible system of deliveries of mineral fertilizers has developed--20 percent of the fertilizer arrives during the first quarter of the year, and another 20 percent during the last. At the time when primary soil cultivation is in progress beginning in the fall a minimum instead of a maximum of fertilizer is received. Supplementary top-dressing is less effective. Beginning in the fall fields sown in the spring also receive only half of the fertilizer dose they need.

Today Stavropol farmers are being given aid--the delivery of mineral fertilizers has been "moved" to the spring, the second quarter. For early spike crops and intertilled crops--sugar beets, sunflowers, and corn for grain--this is a help, but feed fields, for which very little mineral fertilizer is allocated, are not taken care of at all.

I. Nosatenko, meritorious agronomist of the RSFSR, is a reserved individual not subject to the mood of the minute. Without going into raptures he is convinced that a good harvest will be produced. Is this difficult? Yes. But when has it been easy to produce grain?

Stavropol Farmers Await Good Weather

Moscow SELSKAYA ZHIZN in Russian 4 Apr 87 p 1

[Untitled article by S. Timofeyev, Stavropol Kray]

[Excerpts] Harrower trailers, sowing units and machinery belonging to technical service links has been standing ready for 3 weeks in the field stations of Stavropol's kolkhozes and sovkhozes. Even old timers do not remember a time in which warm spring weather was so late in arriving. April has already begun but weather reports continue to be alarming with indications of night frosts, icy road conditions, fogs and only intermittent sunshine.

Still, one senses the inclination towards work everywhere. Selecting the hours of good weather, agronomists are giving the go-ahead to the best machine operators for test runs, moisture retention operations and the sowing of early crops.

Efficiency experts of Kolkhoz imeni Lenin, Novoselitskiy Rayon, are also following this path. As last year, they are carrying out many field operations simultaneously with the aid of combination units which prepare the soil, sow and pack the soil all during a single trip. It is no longer necessary to run the tractors through the fields several times and to pack down the soil. Labor and resource expenditures have decreased by half. This experience has been widely adopted in the kray, with followers appearing in Kobucheyevskiy, Shpakovskiy, Izobilnenskiy and other rayons. Unique multi-operational trailers enable farmers to complete sowing in the best possible time.

In Ipatovskiy, Apanasenkovskiy and Petrovskiy Rayons the movement of humus into the fields where intertilled crops will be sown in the future is continuing. Winter crops are examined again and again. Barley and peas seed has been readied everywhere for the resowing of sparse wheat fields. In Put Kommunizma Kolkhoz of Apanasenkovskiy Rayon the agricultural service has determined that today there has been a significant increase of moisture in the soil and that there are almost 150 millimeters of water at the meter soil level.

The same amount of moisture has accumulated in other rayons of the dry region. This means that the surviving wheat can provide a weighty harvest and that the seed of spring crops will be placed into moist soil. Now we must wait for warm spring weather.

Readiness for Spring Operations

Moscow SELSKAYA ZHIZN in Russian 25 Mar 78 p 1

[Untitled article by S. Timofeyev, Stavropol Kray]

[Excerpts] It grew cold in Stavropol Kray several days ago. Grain farmers are utilizing the bad weather to once again check the readiness of all services for the beginning of field operations. Mutual checks, collective trips to survey sites and raids by people's controllers are being carried out most extensively. Control committees are examining work plans, contract agreements and the obligations of parties; they are checking the readiness of field stations and consumer facilities as well as knowledge of safety rules related to equipment.

In another day or two spring will finally make itself known. Stavropol grain farmers are ready for this. Despite the caprices of weather they are full of decisiveness to struggle for the greatest yield.

Emphasis on Quality, Quantity

Moscow ZAKUPKI SELSKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 11, Nov 86 pp 6, 7

[Article by V. Podkopayev, Director of the State Grain Inspectorate of the USSR Ministry of Grain Products: "Both Quantity and Quality"]

[Excerpts] In carrying out the decisions of the 27th CPSU Congress, the workers of Krasnodar Kray's agro-industrial complex committed themselves to raising a good harvest in 1986 and to selling the state no fewer than 4.1 million tons of grain, including to significantly overfulfilling the plan for the sale of high-quality grain of strong varieties.

1986 weather conditions were extremely unfavorable for grain farmers--a cold spring hindered the growth of grains and then dry and hot weather accelerated their maturation by almost 2 weeks.

While undergoing restructuring in the light of contemporary requirements, party and soviet organs, rayon agro-industrial associations and the kray agroprom [agro-industrial] committee have done a great deal during recent years to improve the quality of farming, to effectively utilize material and technical resources allocated by the state and to efficiently use the internal reserves of agricultural enterprises. Intensive technology for grain production is used widely and successfully on this basis. Thanks to these measures the workers of the Kuban APK [Agro-Industrial Complex] produced a good grain harvest under this year's difficult weather conditions. The productivity of wheat of the strong varieties has reached 60-65 quintals per hectare and that of winter barley--up to 70-80 quintals. On the average in the kray grain productivity equalled 41.8 quintals per hectare, including wheat--45.6 quintals per hectare.

An important factor in increasing grain productivity in the kray, as we have already noted, is intensive technology, the essence of which is to concentrate the use of fertilizers, pesticides, technology and other material resources. On fields cultivated according to intensive technology the addition to the grain yield as compared to this index on fields with traditional agrotechnology equals an average of about 10 quintals per hectare. And there were 1.3 million hectares of such crops in the Kuban this year. By means of this progressive method alone about 1.5 million tons of grain have been produced additionally.

In late August Kuban farmers had already sold the state over 3.6 million tons of grain from the new harvest. The plan for the sale of high-quality grain of strong wheats was already fulfilled by a factor of over 2 by this time. Of the wheats of the more valuable varieties 1,724,000 tons were sold. The plan for the procurement of the basic food crop--wheat--was fulfilled by 124.7 percent.

The largest amount of high-quality wheat grain was sold to the state by the kolknozes and sovkhozes of Bryukhovetskiy, Vyselkovskiy, Gulkevichskiy, Dinskiy, Yeyskiy, Kalininskiy, Korenovskiy, Novokubanskiy, Primorsko-Akhtarskiy, Tbilisskiy and Timashevskiy rayons. Here all of the grain that was poured into state granaries met the requirements for strong and most valuable varieties. The grain farmers of Yeyskiy Rayon sold to the state all the wheat grain that met the requirements for strong wheat. Although these farmers did not fully utilize all existing potential possibilities for increasing the production of high-quality strong wheat this year, their success is indisputable.

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Hurricane in Kuban

Moscow SOVETSKAYA ROSSIYA in Russian 26 Dec 86 p 6

[Article by V. Udachin: "Hurricane Attacks"]

[Text] Winter in the Kuban is rich in surprises. Right now it is mild and warm but with sharp changes in weather--there is either rainfall or snowfall.

There was an unusual event at the port of Tuapse--during the night the sea raged and in the morning large hailstones began to fall. Some pieces of hail reached a diameter of 4.5 centimeters! Hurricane squall winds with gusts of 60 meters per second buffeted the port. They tore the gantry crane from its fastenings, opened it up and pushed it to the end of the crane track. Three other cranes were pushed into the "pack" of cranes. The hurricane lasted several minutes, limiting itself to the port area, but left behind days of work. Workers, dock workers and repair workers from the newly-arrived renovation train began immediately to repair the cranes in an organized manner and to clear the railroad tracks. The next day the port was in operation.

Rice Farmers Ready

Moscow SELSKAYA ZHIZN in Russian 4 Apr 87 p 1

[Article: "Following the Example of Leaders"]

[Text] Krasnodar, 3 April (TASS). In the rice-sowing enterprises of the Kuban the preparation of irrigation systems for sowing was completed today. All canals, the total length of which equals over 7,000 kilometers, have been cleaned of silt. Hydraulic engineering structures have been renovated and pumping stations have been tested.

The kray's rice farmers prepared for the spring of the second year of the five-year plan as carefully as never before. In addition to the traditional repair of equipment and preparation of first-class seed, a great deal of attention was devoted to studying progressive experience. Last year the highest yield was achieved here--52 quintals of rice per hectare. However, more could have harvested here were it not for the unevenness in the harvest. For example, in Kalininskiy Rayon yield was over 46 quintals per hectare, whereas in Rassvet Kolkhoz of this same rayon it was only 41.4 quintals. For this reason it has been decided to cultivate all rice, which is sown on an area that exceeds 150,000 hectares, according to intensive technology.

Top-Dressing Effectiveness

Moscow SELSKAYA ZHIZN in Russian 22 Feb 87 p 1

[Article by Yu. Semenenko: "The Top-Dressing of Winter Crops"]

[Text] Krasnodar, 21 Feb. The practice of utilizing intensive technology convincingly proved the high level of effectiveness of early top-dressing of winter crops prior to the rejuvination of their spring vegetation at the moment the plowland thaws. At present 120 airplanes and dozens of land units have joined the work in the kray. They have top-dressed 300,000 hectares of winter crops in a short period of time. The efforts of Kuban grain farmers

are directed at applying nitrogen fertilizer to no fewer than 600,000 hectares in February.

Kuban grain farmers are also treating crops against rodents. Careful preparations are being made for subsequent work in the winter field--for treatment against weeds and diseases. All agrotechnical operations are carried out first and foremost on fields where winter crops are cultivated according to intensive technology.

Sowing Despite Bad Weather

Moscow SOVETSKAYA ROSSIYA in Russian 3 Apr 87 p 1

[Article, Krasnodar: "Without Rebates for the Weather"]

[Text] The enterprises of Gulkevichskiy Rayon greeted spring successfully. Despite difficult weather conditions, they were first in the Kuban to complete the sowing of early spring crops. Barley, oats, alfalfa and peas seed have been sown on an area of about 9,000 hectares. Taking the experience of past years into account, kolkhozes and sovkhozes have effectively utilized March "windows." Still in the fall they levelled the late-fall plowed fields and for this reason one cultivation operation was sufficient in order to begin sowing seed immediately.

However, we are far from fully completing the sowing of early spring crops in the kray. Sowing has not even been started by the northern rayons, where the largest areas in spring crops are located. The work is being hindered by the cold weather; the soil has not thawed here yet. For this reason in connection with the curtailment of the schedule for field operations, soil-cultivation and sowing units in many enterprises have been supplied with cadres to work in two shifts.

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SUPPLY, DEMAND PROBLEMS IN TRADE SECTOR EXPLAINED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 5, May 87 pp 53-64

[Article by M. Kunyavskiy, doctor of economic sciences; and V. Lopatin, candidate of philosophical sciences: "Industry, Trade and the Consumer"; capitalized passages published in boldface; first paragraph is PLANOVOYE KHOZYAYSTVO introduction]

[Text] "We shall attentively and critically interpret modernization practice. We shall evaluate, adopt and develop every grain of progressive knowhow." (From the Appeal of the CPSU Central Committee to the Soviet People).

The broad wave of experimentation that has engulfed our social production is revealing more and more new reserves for more rational management. While this is an encouraging reality, we cannot fail to notice something else--a unique bias in the formation of an effective khozraschet structure: much is being done to see to it that not a single producer receives anything extra from the efforts of others while there is much less concern that no one shall pay for the blunders and sluggishness of others. Khozraschet must be oriented toward making everyone truly exert themselves.

This is not so easy because the situation is such that the tasks of organizing economic management are in general incomarably more difficult. It is one thing to revise fund-forming indicators, to introduce profit instead of normative net output, for example, which one can do without even leaving one's office. It is quite another matter to restructure the system of economic relations of many thousands of enterprises and of a number of branches that have been converted to full khozraschet.

For this reason the consequences are also incomparable. If the nuts of material responsibility of khozraschet enterprises for the socially useful results of their activity have not been tightened all the way, producers will move toward it slightly more slowly or with more deviations than we would like. This is lamentable, of course, but correctable. But if work collectives continue to feel the weights of mismanagement on their legs, as a result of which every step forward requires tremendous effort, it may generate still more of the mood that one encounters even now, a mood that encourages staying in the same place without laying claim to incentives.

Such a lack of coordination is particularly painful in light industry where the "weights" are especially heavy.

The first results of the work of enterprises in this branch under the new conditions must be analyzed even now without waiting for and counting on the "flawlessness" of the new conditions, so that the shopper at the counter would first feel and evaluate the changes. What should be noted in this connection? Income in light industry, as in other branches, depends of course on the rhythm and completeness of deliveries of raw materials, supplies and equipment; on the precise operation of transport; on the substantiation and, we emphasize, the progressiveness of management principles and plan targets; the thought that goes into GOST's [all-union state standards] and wholesale prices, i.e., everything that influences the "input." Here, as we see, there are no particular branch features whatsoever. But there is a distinction in another respect: the income of light industry enterprises is highly dependent on the situation "at the output." What is more, this dependence is so great that the clear concept "end result" becomes unclear.

It is not enough to say that light industry's products are intended for the mass consumer. This is the root of all particulars which have not been revered so very much up until now. But it is specifically the person who evaluates with the ruble that which he is offered who must in fact influence the entire production chain. The principal sense of the changes in light industry is the STRENGTHENING OF THE INFLUENCE OF THE CONSUMER rather than regulations from above. The closest approach to this is provided by khozraschet based on the so-called "residual income" method which the Belorussian Ministry of Light Industry has begun introducing. According to this method, wage funds here are formed not on the basis of indicators (base plus increment) but are formed directly from the proceeds from sales. This gives the consumer's ruble considerable weight and strength, i.e., controls the work of the producer and the quality of his goods. Such is the idea. Everything depends on the way it is executed.

But the real situation is as follows: light industry receives its rubles not from the mass consumer but from the hands of an intermediary--trade, which does a pretty fair job of transforming the consumer's demands whether we wish it or not. The success of all measures that are taken will depend to a considerable if not decisive degree on the nature of this transformation. Will it not be so considerable that it will be appropriate to speak about the final product for trade and not for the consumer? One cannot get far with such "weights."

WHO "MAKES THE WEATHER?"

For some time, there has been more and more discussion about "working for the warehouse."

It is difficult to agree with such an absurdity. But, unfortunately, a number of enterprises and ministries have grown accustomed to it. They have grown accustomed and do nothing, satisfied that everything "is taken into consideration" and that the tempo is set. But the more unsalable goods accumulate in the warehouses of industry and trade, attesting to the fact that

extensive growth in the production of consumer goods has outlived itself, the more decisively are measures required to overcome the dictates of the producer. But we must look at things realistically. Since light industry enterprises do not have direct access to the consumer, these measures, too, are unique. On the behalf of the consumer, trade influences industry and the behavior of its collectives. It chooses, checks and prices the commodity. There are also plans to connect production plans with trade's orders and purchases, but this is not as yet being done. The concern of planning agencies for increments--in rubles--makes itself known.

What is to be done here? What details come to light here? If the final goal of what is taking place is to restrict industry's potential to produce what it wants, it can be said with certainty that progress is in evidence. If, however, there is another goal--to strengthen the customer's influence on industry--the problem is more complex because it is not clear how close trade's orders are to the real wishes of the mass consumer.

It is extremely important and instructive to clarify this point.

STRICTER DELIVERY DISCIPLINE for contractual deliveries with the aid of a new if not unique indicator in the history of socialist economic management--the volume of products sold with due regard to the fulfillment of contractual obligations" was the most fundamental idea of the large-scale economic experiment. The product (use value) must be preponderant. The gross output indicator ["val"] has finally been eliminated.

To the honor of the Belorussian SSR Ministry of Light Industry, it fulfilled its delivery plan both years of the experiment. But at what price? The branch had to increase its normative inventory of commodity stocks by 90 million rubles. However, even this "buffer" did not guarantee rhythmic operation. Therefore, in an effort to facilitate the fulfillment of contracts, the branch has drawn lines between enterprises resulting in a higher degree of specialization than usual. Most of them have become monopolists in that part of the product mix that they produce in the republic. Such a situation does not by any means inspire the producer to improve and modernize his product. This does not promote the satisfaction of the consumers' wishes. Is this what we were striving for?

Nevertheless, to all appearances trade workers were for the most part satisfied with the new indicator. We note that total fines levied by trade against republic light industry enterprises for delivery contract shortfalls declined during the two years of the experiment to almost one-tenth of the previous level: from 10 million rubles in 1983 to a little more than one million in 1985. This is good. Obligations are being fulfilled better. But the picture is clouded by the steady growth of inventories of commodity stocks and stockpiles of unsalable commodities. What is more, their quantity has grown with the increase in the sum of discounts. Trade workers are inclined to view this circumstance as the result of the insufficient rigidity of the sales indicator. If light industry reported on the fulfillment of this indicator not in a general mix but in a detailed mix (as described in the contracts), there would be no such opposites: bonuses for 100-percent deliveries and fines for delivery shortfalls. And the consumer would receive

only what he needed. In a word, matters are pictured in a way that suggests that together with the tenfold decrease in fines, the quantity of unsalable goods has also decreased tenfold and that little remains to be done to eradicate this phenomenon entirely. In practice, there is no positive relationship between the total fines (i.e., contractual delivery discipline) and the size of inventories in trade. Therefore, the possibility of converting enterprises to a system of evaluations based on the detailed product mix also seems indeterminate even though certain steps are being taken in this direction.

Starting with the present year, enterprises belonging to the USSR Ministry of Light Industry have begun operating with a partially detailed product mix, i.e., on the basis of specific items in the mix (for example, women's sweaters, pure wool). It must be said that the rigidification [uzhestochenie] is insignificant compared with the fully detailed product mix (even for enterprises belonging to the Belorussian Ministry of Light Industry, it comprises up to 20 million commodity features [tovarnyye priznaki]. But nevertheless, it is appreciable. According to preliminary estimates, Belorussian light industry enterprises can at best carry out deliveries of 60 percent of the detailed product mix. Much more remains to be done so that the entire delivery schedule can be accomplished. In particular, inventories of finished products at enterprises must be increased 6-7-fold so that the entire mix would be available to the customer. After all, the average production cycle for a lot of just one model, in the knitted goods branch, for example, is 45 days while the normative inventory is sufficient for 7 days. The arithmetic is not complex. But it should be considered that such a measure may result in the immobilization of large quantities of material stocks and in the slowing down of their turnover time. Such a situation is very costly to enterprises under the conditions of self-financing, to say nothing of the fact that it will be necessary to build additional warehouses. What is more, considerable labor resources will be required to sort products on the basis of all commodity features and to keep track of the fulfillment of contracts at enterprises. And if 20 percent of the computing and calculating equipment today is oriented toward sales, with the transition to the detailed product mix this share will have to increase to at least 50 percent. At the average enterprise there will be 300-400 sheets of tabulated forms pertaining to the delivery subsystem alone.

And all this for the sake of a nebulous future. Nebulous because no matter how strictly the contracts are observed, satisfaction of the customers' demands will be problematic if these demands are not reflected in the contracts proper.

It is difficult to even guess at the power and perspicacity consumer demand study services would have to possess in order to provide trade with reliable information on whether the consumer will like jackets or shoes offered by industry in late (and early) 1987 if one considers that the fate of an order is decided at a wholesale trade fair already in the middle of 1986. And, after all, trade's demand research services are far from large. Of the 2000 persons assigned to these services according to the data of the Belorussian SSR Ministry of Trade, a little over 150 have been released. For all types of commodities. Plus 30 persons in the republic affiliate of the All-Union

Institute for the Study of Market Conditions and Consumer Demand and three persons in the corresponding department of the Ministry of Trade who by their own assessment "study" demand "on their fingers."

It is obvious that for this reason commodity experts at trade fairs ignore even the information that is offered to them regarding possible demand. They select goods entirely on the basis of personal taste and experience. Not in the least embarrassed by this, without any particular reflection, they write down every last detail: what, how much, where and when the producer must deliver in the coming year.

How can it be otherwise? After all, at the will of the Ministry of Trade every enterprise has 100 or more requesters and receivers of its products all throughout the country. All of them must receive varied products, for any taste, and to meet the "physical parameters" of the consumer. Anarchy here is inadmissible. There is need of firm guarantees and order.

Everything would seem to be logical. But let us take a closer look at this order. The Pinsk Interrayon Base of the Brest oblpotrebsoyuz [oblast union of consumers' societies] purchased 150 model No 237 men's pure-wool pullovers from the Minsk Experimental Knitted Outergarments Factory for the third quarter of 1986. It possibly would have purchased fewer (as a result of a further increase in the number of models), but that was not possible. And so it purchased two items less than the minimum purchase of this model. Does this mean that two consumers will be unable to find the very pullover they need? If it were only two. Among the remaining 158 pullovers, many are one of a kind (the minimum norm). And they are distributed throughout the entire rayon, and the base scheduled 63 of them for transit shipment to another city. Thus the consumer is faced with making an interesting search: to find in the entire rayon not even one but two-thirds of a pullover with the combination of features he requires.

But just let the supplier try to breach such a specification: he will instantly be fined. There are also oddities here. In the sales department of the Sewing Association imeni N. K. Krupskaya, we were shown fines for violations of the scale of sizes that resulted from...different views of the manufacturer and the recipient on the rule for rounding off decimal fractions. An enterprise is obligated by the percent scale appended to the contract to deliver during the quarter, let us say, 11.5 overcoats of one size and 17.5 overcoats of another size, and ships 11 and 18 overcoats, respectively. The wholesaler, however, believes that the apportionment should be different: 12 and 17. And he fines the manufacturer for delivering one unit less than stipulated.

So it is that we sometimes write contracts from "the ceiling" and then stand behind every comma with might and main. As we see, there are only departmental ambitions, not concern for the consumer behind the contractual pedantry of trade.

At the same time, it has been given considerable rights starting with this year. In addition to the broadening of the evaluation nomenclature, all manner of tolerances have been eliminated from the delivery plan, engineering-

technical and management personnel of enterprises are to be stripped almost entirely of their bonuses for the slightest underfulfillment of the new indicator, and fines are to be increased for underdeliveries and are to be paid out of the incentive funds...

The fundamental question arises: are not the enumerated measures applicable to light industry not premature? Or altogether wrong? The answer must show whether movement is developing in the right direction.

COUNTER-MOVEMENT

It is an immutable principle of efficient management that obligations correspond to rights and vice-versa. In regard to trade, this means that it must be entirely answerable for its requisitions, orders, and purchases just as soon as they acquire the status of directives for industry.

At first glance, it appears that responsibility is all that trade lacks today to become the truly directing link in the activity of light industry. RESPONSIBILITY but nonetheless MOTIVATION. This has to be emphasized because trade's rights are at present incomparably broader than its obligations. When it accepts products from the manufacturer with all the captiousness it deems appropriate, it [trade], as it turns out, is by no means obligated to sell everything it has purchased (to say nothing of everything it has ordered) down to the last "thread." It has a mass of official and not entirely official possibilities of returning products to the supplier all the way from outright refusal to accept goods specified in the contract to petty fault-finding with things it clearly does not need and that it should not have ordered.

What is more, 85 percent of trade's working capital is "borrowed," to put it mildly. Credit is automatically granted for this capital and new credit can be obtained before the old credit has been paid off. What kind of responsibility can there be for a commodity that is not purchased with one's own funds? Only administrative responsibility and then before the one who authorized the granting of the funds. Neither producers nor consumers are related to these persons and hence even if they are able to influence trade, they can only do so very faintly, not directly, but merely by calling down the wrath of its executives on trade.

Nor is the commodity turnover plan a powerful stimulus. It can also be fulfilled at someone else's expense, by requesting so-called contingency funds for the purchase of goods. If the commodity turnover plan truly oriented trade toward the consumer, it would not be necessary to defend the interests of the latter with all manner of additional documents such as the product mix minimum, the list of goods in sufficient supply, etc.

Such a situation cannot be considered normal. Trade must answer for the results and economic feasibility of its actions. It should answer materially and inevitably. When it buys a good with its own funds and sustains losses, they should in some measure be connected, as in communicating vessels, with the personal pocketbook of specific trade personnel. In other words, in order that the chain of material interest from manufacturer to consumer not be broken, trade, like industry, should operate under the conditions of genuine,

complete KHOZRASCHET and SELF-FINANCING. One would like to believe that specifically this type of khozraschet is being established in the circulation sphere after the adoption of the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning, Economic Incentive and Management in State Trade and Consumer Cooperatives" which was adopted in 1986. Clearly, the "reins of government" cannot be turned over to trade until it has properly established khozraschet. But can these "reins" be turned over after khozraschet has been introduced? That is the question.

Khozraschet will unquestionably give trade additional responsibility in economic decision making and for their consistent implementation. But how far should its rights extend? Where are the objective boundaries to its competence?

Can we, for example, attribute the instability of decisions that trade makes at trade fairs entirely to the irresponsibility and unprofessionalism of trade officials, which can easily be remedied by known economic reforms? Or are such decisions by their very nature doomed to instability? In order to answer this question, we studied the fate of the specifications in contracts concluded after a trade fair between trade and two Minsk enterprises: the Experimental Knitted Outergarment Factory and the Sewing Association im. N. K. Krupskaya.

The results exceeded our expectations. After examining all specifications made by these enterprises in 1985-1986, we did not find a single one that had not been changed. Half of most of them had been reconfigured. And of that which such centers of republic trade as the Minsk TsUM and the Belarus department store received from the Minsk Knitted Outergarment Factory in 1986, only 28 percent was coordinated at trade fairs.

This phenomenon is too widespread that it could be explained by subjective reasons, i.e., the irresponsibility of trade officials, especially since not only trade is the initiator of changes. Trade is not even so much the initiator: more than half of the replacements were at the request of the suppliers.

Trade retrieves its losses in this regard by more radical means. In 1985, trade organizations refused to accept 10.7 million rubles' worth of products from light industry enterprises, without demanding any kind of replacement. This was a rejection of funds [fondy]. No one at the Ministry of Trade suffered because the enterprises had drawn up their plans, had purchased raw materials, etc. on the basis of the results of the trade fairs. And products were frequently produced in conformity with the orders but they were not taken. And there are also returns "because of quality," which frequently have a completely different subtext. The data on returns of products to the Factory im. N. A. Krupskaya listed 25 reasons why trade rejected the ordered products. What kind of stability of the producer's position can one speak of after this?! But the point at issue in the given case is khozraschet responsibility. Ultimately, the damage is borne by SOCIETY (THE STATE). But no one goes this far when they make "their" economic decisions--when they order, reject, get rid of products, etc. And the appearance that all is well with regard to the state's interests is created: turnover tax and other

payments are made to the budget even before the product reaches the store, much less before it is sold. Such is the knot of interests that, however, do not receive true, materially expressed satisfaction. Such is the conclusion. It is in some measure concealed by the line of rigidifying contractual relations in economic ties. It is countered by the directly opposing tendency that is actively used by both industry and trade. The trend toward the "softening" of contractual ties of late has also been formulated in the appropriate normative documents at the republic and in part at the all-union level.

Thus, the Statute on Deliveries of Consumer Goods indicates the time limits within which trade organizations are entitled to demand that the manufacturer replace a given item agreed upon in the specifications as a result of change in demand. What is more, the supplier is obligated to accept them unequivocally.

You will agree that this one point alone is sufficient to understand the cost of our attempts to bring order to contractual relations. However, even such a free framework proved to be too confining in actuality. In practical terms, the mix is replaced when the need for replacement is felt, even directly in the course of deliveries. And in order not to hold back the irrepressible, our republic has promulgated the order of the Ministry of Trade and Ministry of Light Industry, in accordance with which products that are not in demand may be replaced at any time at the insistence of the Ministry of Trade wholesale base nearest the manufacturer. To do so, it is not necessary that the base even obtain the written consent of all other wholesale purchasers of the given item. In a word, every provision has been made so that unsalable models would be taken out of production in the shortest possible time. But why were such models included in the contracts? How is demand being studied? What is the real essence of the contracts?

These questions are also skirted when the logic of events would sanction the rejection of funds [fondy]. In such cases, the enterprise must seek ways of selling its own product.

Such a measure is of course just as inevitable as the attempt to reduce the time interval between wholesale trade fairs and the commencement of deliveries. As is known, it was decided to hold republic trade fairs twice a year. This has been the practice in Belorussia for several years and moreover for certain of the especially mobile groups of products, the mix at trade fairs is written up model by model only for the next, first, and third quarters. The contract for the second and fourth quarters merely indicates the total sum of the delivery with the indication that there is to be subsequent additional coordination of models. The practical result is four trade fairs a year.

All these are unquestionably favorable changes. But how in the light of the real facts can one combine the rigidification of contract discipline on the one hand and the free handling of orders on the other?

The tendency toward the rigidification of delivery discipline did not come ouf of the thin air and merits specific examination.

And when you begin to analyze the situation it turns out that even when the intermediate link--trade--is the requester, the possibility for rigidifying contracts and the relationships associated with them have still not been exhausted. Strange as it may be, we were led to the idea of further developing this tendency by the increase in the number of wholesale trade fairs held in light industry during the year. Above, this phenomenon was regarded as evidence of the "dynamization" of relations between partners. But from another point of view, such a measure can also be used to rigidify contracts. After all, if the contract compilation-trade fair procedure is regularized, this means that prerequisites are created so that the contract would reflect demand to a greater degree. Especially, if we go further and increase not only the number of trade fairs but also the number of stages in conducting each of them. Speaking simply, this means legalizing the two-stage compilation and formulation of contracts.

It is not difficult to understand what is behind such an increase in complexity. In the absence of appreciable material responsibility for commodities purchased from industry, trade has too many rights. But if it acquires responsibility, trade will lack one, but decisive, right. The right to TEST the potential for marketing an item before the transaction is concluded. No amount of perspicacity and experience can take the place of such a test.

Certain inconveniences and losses sustained by the manufacturer in connection with the production and delivery of truly experimental lots (and not those that are presently sold in factory outlet stores) will be more than compensated if after the final signing of the contract there are no returns, no rejections, no replacements. In contracts that are compiled on the basis of well-studied demand, there will be more demandingness but less subjectivism. Such relations are a boon to an efficient production worker.

Alas, light industry will not be able to conduct such tests in the foreseeable future. The reason is the seasonality of its products. In order that test marketing not become an empty formality, it must be carried out in good time so that its findings can be used to adjust the program. Given the somewhat unwieldy production mechanism, test marketing should be carried out 2-3 months before the commencement of wholesale deliveries. But how effective will test marketing be for shoes, for example, scheduled for May if the test marketing is conducted in February? The demand for seasonal items is also seasonal unless of course they are in extremely short supply. But it is not mandatory to test market scarce items.

If even after test marketing a product in specialized stores, trade is unable to guarantee at trade fairs the infallibility and, most important, the irrevocability of its purchases, this means that there can be no guarantee whatsoever in respect to light industry's extremely volatile, changeable product mix (fashion, season, local features). And to demand them of trade is not premature but is basically not legitimate, just as it is not legitimate (but not premature) to itemize and rigidify the demands that are made on the supplier. Neither one nor the other will be able to pedantically observe the

obligations made at trade fairs until the content of these obligations and the procedure for making them are radically revised.

What is the sense of including in contracts what is known beforehand to be unfulfillable? Because it is very essential to the consumer that it be fulfilled? The facts show: not very. But then why? This is not even psychologically consistent. It is sufficient to include even one item that is not fulfillable and people lose confidence in it.

"Why do we believe that a commodity expert selecting goods at a trade fair or, let us say, at the art council, knows better than the consumer what the consumer himself wants?" The manager of the Orsha Sewing Factory asks. And this is not the rhetorical question of someone in production who is wont to cite the incompetence and subjectivism of trade. This is the conviction of an economic manager who has already had occasion to answer this question in practice.

The most that trade can determine at trade fairs is the GENERAL NEED of the population of a certain region for raincoats, overcoats or boots and the like, i.e., so-called macrodemand. And this process is not without errors. It is sufficient to recall the crisis with bed linen, diapers, corsets, gloves, and spools of thread. It was either feast or famine and everything that happened was based on requisitions from the ministry of trade. Trade officials should not forget about these unpleasant phenomena.

All this is so. But it must be considered that trade, which is at best dealing with today's goods, is in principle unable to predict the specific kind of raincoats, overcoats and shoes the customer will prefer tomorrow. And it must not make predictions that will only interfere. INDUSTRY itself must study, forecast, and shape microdemand for specific fashions, models, etc., in the process of deciding what to deliver for sale. And the consumer himself will directly evaluate how successful it is in doing so. The consumer will do this through his own purchases, without intermediate links that disrupt the contact. If it is absolutely impossible to force trade to represent the interests of the consumer rather than its own, then let the consumer have his say without trade forcing anything on him.

This was roughly the thinking in Orsha before the decision was made to undertake the unprecedented experiment. Since 1980, the Orsha factory which had by that time become an experimental factory, has had the authorization of the republic Ministry of Light Industry and Ministry of Trade not to submit at trade fairs the detailed product mix that it obligates itself to deliver to trade, and to submit only a few representative models. The general product list is the maximum degree of detail of the contract. Models, fashions, colors, fabrics--all these are at the discretion of the enterprise itself. In this sense, it truly determines the specific items that will be produced in response to actual demand.

Since trade, wholesale bases and stores no longer select commodities, they now have the entirely official right to return goods that are unsold for 8 months to the factory in exchange for new items. This does not mean that they may return just any items; they must return at least 30 percent of the products of

a certain model received from the enterprises (if a smaller amount remains, it will be considered that not the model but an incorrect order or the poor organization of trade are "to blame").

As we see, the contract is not abolished in the Orsha experiment, but it has become more fulfillable. Contract discipline was also strengthened due to the fact that both partners assume only realistic obligations. Commodity experts do not "read tea leaves" regarding every collar or button but rather concentrate on consolidated orders. The producer will not clutch at his heart if instead of red woolen cloth the textile industry supplies him with orange-colored cloth, for example, if the product will not suffer as a result and if the consumer does not refuse to buy it.

Specifically the consumer because in the experiment the supplier assumes responsibility for the FINAL result of his labor--the sale of products in stores, and not for the intermediate and very conditional result--the fulfillment of the contract with trade. This is no trifling matter. Every year the product mix must be entirely modernized. This does not merely mean shifting a line (this is frequently the extent of "modernization") but entails assimilating new products, obtaining scarce raw materials for this purpose, modernizing equipment, and improving the organization of labor. The demands of the mass consumer are much more abrupt than the usual claims of trade if the consumer has any choice at all.

Such is the manufacturer's "reasoning." The broadening of rights here will be more than compensated by the increase in responsibility. And what of trade? Can we say the same about trade? The whole point is that we cannot. Therein lies the principal weakness and half-heartedness of the Orsha experiment, not to rebuke its initiators. This would seem to be the main reason why the experiment has won extremely few followers in 7 years: according to our data, only four sewing factories in Belorussia. And this despite the fact that it has been described in the central press. RESPONSIBILITY MUST BE RECIPROCAL.

Production workers primarily do not wish to adopt the "Orsha system": "Trade already bears little responsibility for orders and purchases and now we should be responsible for sales!" The apprehension was by no means unfounded. In 1982, trade organizations returned 32,000 children's overcoats valued at 870,000 rubles to Orsha and subsequently returned twice as many valued at more than 2 million rubles. Even items that had never been on the counter were returned. It turned out to be a warm winter and trade had ordered too many children's overcoats.

The situation has now normalized and the number of returns is negligible. But not because trade has become more perspicacious and efficient, but primarily because of better market conditions and because product quality has been improved. But market conditions can deteriorate again, which will once more increase the significance of the ability to trade. And the painfulness of ineptness.

Attempts were made to improve the Orsha experiment. In agreement with the Ministry of Trade, the total number of returns to which a given wholesale buyer is entitled is limited to 15 percent of the products delivered to it by

a factory. There was an effect but the product was not basically solved. This requires increasing the motivation and responsibility of trade. Moreover, by economic methods. Just as soon as each partner--trade and industry--is on a khozraschet basis, relations between them, levers of their reciprocal action and for their coordination must essentially also be on a khozraschet basis. Otherwise, khozraschet will remain a secret and the controlling force of the consumer's ruble will be weakened.

At the same time, it must not be forgotten that the sale of a good is nevertheless the business of trade, even if it is not without flaws. The return of a good is an unnatural measure that turns the producer into a seller. This weakens trade and does not greatly spur the manufacturer forward, especially a manufacturer whose product level is higher than the national average (and such manufacturers are the majority in the Belorussian Ministry of Light Industry). "If you don't want them, others will be glad to take them."

In decrees adopted by the CPSU Central Committee and the USSR Council of Ministers on light industry, trade and consumer cooperatives in 1986, provision is made for trade organizations' acceptance and sale of products with deviations from GOST's [all-union state standards], OST's [all-union standards] as well as from models and standards agreed upon in contracts for contractually lowered prices. Such measures will be timely and highly effective if they are consistently and decisively implemented. Second, returns are replaced by DISCOUNTING at the manufacturer's expense. Second, the initial meaning of contract prices, which of late have been understood solely to mean higher prices, is restored.

The acceptance and sale of uncoordinated products for contract prices greatly resemble commission trade and readily combine with the "Orsha variant." After all, all output here is uncoordinated or, more precisely, the specific mix is not specified. And all of it is accepted by trade as if on commission: if we sell it, fine, if not we'll return it. Thus the essence of the experiment will not be lost and its effectiveness will unquestionably grow if returns are entirely replaced by discounting at the manufacturer's cost.

This is "technically" simple. The point in the delivery contract regarding the return of unsold products is replaced by a graduated reduction of retail (and, accordingly, wholesale) prices on products. The time of every subsequent reduction is specified (naturally, not 8 months--the product must be sold in season and the amount of the reduction in percent of the original price. What is more, the supplier's earnings can continue to be calculated automatically, at the time of shipment, in order not to complicate the procedure. But in the event of subsequent discounting, the buyer refuses to accept the products and collects from the enterprise's income a compensatory sum after sending the appropriate notification.

But the question is: how much? If it is for the entire sum, only industry will suffer while trade will prosper as if nothing depended on it. It is clear that losses, like income, must be divided between the partners so that it would also be more advantageous for trade to sell products for the "list

price" rather than at a discount. It is only necessary to establish the proper proportions.

Nevertheless it would seem that trade should have less responsibility than industry so that trade would not claim the right to select part of the mix for sale, as is presently the case with high-fashion products that are sold for contract prices. If trade is responsible for discounting these commodities on a par with the manufacturer, it will demand the preliminary coordination of models up to and including their scheduling at wholesale trade fairs, which is by no means for the good of the cause.

In order to motivate trade to perform its commercial functions creatively and properly, it is sufficient to strip it of the income that it would receive from the sale of nondiscounted items, i.e., in the discounting process, the supplier, compensating the losses of the other party to the contract, will not pay trade the profit for these items, as if not counting trade's services in the given instance. Thus, trade will have no direct losses but will also be unable to realize earnings where its partner loses. There develops a single motivation chain that is oriented to the sale of products to the consumer and all its participants receive an income if the good is sold for the established price or lose if it has to be discounted.

Under these conditions, how will trade actually be able to fight for its income? By increasing the accuracy of its forecasts and orders, by improving advertising, by improving the way it displays goods on the counter, and by other ways of dealing with the consumer? Unquestionably. But what is to be done by a store that has already used all these simple ways of selling its products but to no avail? Things cannot be returned. They can only be discounted. And this is unfortunate because the store can be helped.

This requires a real--powerful and motivated--INTERMEDIARY that would truly help stores in difficult situations or better yet to prevent them from arising at all. Such a potential intermediary exists in our trade and abroad. It is the wholesale link. But in actuality it merely performs bureaucratic command and elementary transshipment functions. Wholesale bases of "Tekstilshveyobuvtorg," for example, process their own turnover in their own warehouses and do not overly tax themselves with goods batching and sorting. They generally send the other half of the goods through direct transit shipments, oversee them from the side, but nevertheless receive their share of the profit for this. Hence also the absurd demands that are made upon the producers: to observe the specific, scheduled proportions for all commodity features, as a result of which it is sometimes easier for producers to produce the product than to ship it.

There is now reason to hope that the wholesale link will not be bypassed with the conversion of trade to khozraschet. Wholesale bases must earn their share of the trade discount. If the receipt or nonreceipt of the discount depends on how things are progressing in retail stores (today, wholesale trade does not depend in any way on the final sale of the product), activity at the bases will not only become more brisk, but will also change its orientation and adapt to the consumer's needs.

However, each Ministry of Light Industry enterprise has more than a mere dozen wholesale partners throughout the entire nation. How can their activity be coordinated in respect to a commodity that is produced by a given enterprise in order to reduce errors and discounts to a minimum? Who should this coordinator be?

We believe that (each producer) should have his own director in every specific instance--the territorially closer wholesale base of the Ministry of Trade (the so-called support base). Let it find buyers and negotiate with them regarding deliveries of the products of "its" enterprise, let it execute these contracts and ship goods directly from the warehouses of the industrial partner (this, by the way, was envisaged from the very beginning when funds to defray transport costs were allocated to trade, but was somehow forgotten).

Thus, the base becomes the general customer and authorized representative of the market to the producer and vice-versa. The enterprise, in turn, is relieved of marketing concerns but not of the responsibility for the results of marketing and this is very important.

The general buyer, who is interested in minimizing the discounting of products that are to be resold by him, first, strictly monitors the course of discounting wherever it may take place and prevents all manner of abuses at the local level. Second, he organizes intermediary ties between his partners in the market, does not discount a product at the first bell but ships it where there is a demand for it. And if in addition, a base creatively approaches the first shipment of a product under contract, without trying to schedule everything beforehand, there will be much less cause for action by intermediaries and all the more so discounts.

And these are not empty fantasies. The producer's base will receive products according to the "Orsha method," i.e., without scheduling its specifications.

Thus, why should its further route be regulated beforehand? And how can this be done if one does not know the kind of product that is being produced by one's partner and whether one wishes to or not, one must adjust to the instantaneous needs of partners, to the current demand of the consumer, organize direct information ties and feedbacks, batch and sort goods, organize their delivery to their destination...

It is also necessary to realize one more very important task--the impartial and competent ACCEPTANCE OF PRODUCTS WITH REGARD TO QUALITY. It is sufficient to transfer final quality control inspectors to general buyers at assigned enterprises (naturally, together with the wage fund) and they will be able to conduct thorough on-the-spot inspection of the quality of production and to place their mark on the inspected product. This will close one more door to those desiring the easy life: the return (or discounting) of unneeded products "because of quality." And control [kontrol] will indeed become the point where the product passes from the possession of the manufacturer to the possession of the seller. This will be a point that is localized in space and in time. All discounts carried out at the producer's costs will take place exclusively before his eyes. Other discounts will be at the expense of those inspecting the product, i.e., the "general buyer" (naturally with the

exception of hidden "delayed reaction" flaws). If he wishes to see fewer discounts, he must inspect the product conscientiously but must not be captious because he is also interested in selling more and he will not permit others to be captious.

It is important to note that the conversion of Ministry of Trade wholesale bases to the status of general buyers does not mean that they are transformed into a mere appendage of enterprises like the outlet centers [vykhodnyye bazy]. First, they will remain in the Ministry of Trade. Second, their income will form not only from the shipment of products outside their oblast but also from incoming shipments as well. Operating as conventional bases, they will supply local stores with goods purchased from other general buyers in the republic and in the nation. Consequently, the enterprise will not be able to speculate on the interest of "its" base, monopolistically compelling it to push aside worthless products (all the more so because several support bases in the zone of their activity will have several enterprises in the same area of specialization).

Nor is the "generalization" of market relationships to be feared in the opposite respect. The producer will indeed be tied to one trade subject. But it will be a subject with limited subjectivity since it will not select the goods. Nor will they be selected at branch art-technical councils or at wholesale trade fairs. Both of them are simply unnecessary when the producer answers with his own ruble for the sale of the product. After all they live without branch art councils in Estonia and in Hungary without trade fairs.

The time has also come for us to trust the producer acting on his own responsibility. Then the dictates of the producer will give way not to the hegemony of the seller (which, it turns out, is still worse) but to the power of the consumer

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COMMODITY TURNOVER FIGURES FOR JANUARY-APRIL 1987

Moscow SOVETSKAYA TORGOVLYA in Russian 21 May 87

[Article by SOVETSKAYA TORGOVLYA State Trade Department: "Making Up for Lost Time"]

[Text] The USSR Central Statistical Administration reports the fulfillment of the retail commodity turnover plan by union republics for January-April 1987:

	1.	2.	3.	4.	5.
USSR.....	110,221	96.1	97.8	99.6	103.2
RSFSR.....	60,917	95.6	97.8	99.3	103.6
Ukrainian SSR.....	18,164	95.2	97.0	98.7	101.7
Belorussian SSR...	4,163	99.4	100.0	103.6	106.1
Uzbek SSR.....	4,482	93.2	93.2	97.7	99.3
Kazakh SSR.....	5,233	97.1	99.9	100.7	104.9
Georgian SSR.....	1,678	93.4	97.8	101.6	102.8
Azerbaijan SSR....	1,575	97.4	98.4	103.9	104.7
Lithuanian SSR....	1,623	99.2	98.7	99.0	103.4
Moldavian SSR.....	1,407	98.3	99.3	102.0	103.9
Latvian SSR.....	1,402	100.0	99.2	99.7	103.5
Kirghiz SSR.....	1,067	97.8	97.5	102.8	104.2
Tajik SSR.....	1,027	96.9	98.0	101.9	103.0
Armenian SSR.....	1,038	94.0	94.7	99.5	100.7
Turkmen SSR.....	899	95.0	97.0	99.5	101.3
Estonian SSR.....	886	100.4	100.6	101.2	103.6

1. Actual volume of commodity turnover (millions of rubles).
2. Percent of fulfillment of plan for total volume of commodity turnover.
3. Percent of fulfillment of plan excluding sale of alcoholic beverages.
4. January-April 1987 in % of January-April 1986 (in comparable prices). Total volume of commodity turnover.
5. January-April 1987 in % of January-April 1986 (in comparable prices) excluding sale of alcoholic beverages.

The difficult situation that existed at the beginning of the present year with respect to the fulfillment of the retail commodity turnover plan has continued

into April. As a result, as the above-cited data of the USSR Central Statistical Administration show, the plan target for the general volume of retail commodity turnover in the nation's state and cooperative trade in general was fulfilled by only 96.1 percent in January-April.

This lag is to a certain degree because the commodity turnover plan is not sufficiently backed with commodity resources, the quality of certain consumer goods is unsatisfactory, and the consumer goods mix does not conform to the population's demand. For example, M. Volchkov, planning department chief, Togurskiy ors [workers' supply department], Soyuzlesurs (Tomsk Oblast) writes in a letter to the editor that the available nonfood resources of the ors commodity turnover plan comprise only 30 percent of the norm.

The shortage of goods today is felt in many trade organizations. But this situation is by no means tolerated everywhere. In a number of places, the leaders of party, soviet and economic organs are taking effective measures to increase the volume of consumer goods production. Leaders of party, soviet and economic organs in a number of places are taking effective measures to increase the volume of consumer goods production. Trade enterprise and organization collectives are trying to multiply these efforts by strengthening their business contacts with suppliers of goods and by searching for internal reserves for the accelerated development of the sale of goods. All this has enabled collectives of trade organizations in the Estonian SSR, Khabarovsk Kray, Kamchatka Oblast, and Moscow to fulfill the commodity turnover plan targets set for January-April.

The work experience of the leading collectives attests to the branch's unutilized reserves. Workers of the Fokinskiy rayprodtorg in the city of Bryansk regularly fulfill their plan. They have realized additional proceeds in the amount of 150,000 rubles from the activation of three cafeterias and an equal amount from trade in urban mass recreation places on Saturday and Sunday. Workers in affiliates of the torg's stores that have been opened at a number of Bryansk industrial enterprises have contributed 300,000 rubles to the common money-box.

Public dining enterprises have vast untapped reserves for the development of commodity turnover at their disposal. They are actively used, for example, by culinary experts of the Kostroma City Public Catering Association, who have in this way fulfilled the four-month commodity turnover plan by 101.3 percent. They are primarily emphasizing the development of the production and sale to the population of culinary and confectionary products, the volume of which increased by almost one-fourth during the first quarter of the current year compared with the same period last year.

Wide use is made of the potential of public catering for developing retail commodity turnover in the Belorussian SSR, in the city of Narve in the Estonian SSR, where many food stores have organized the sale of culinary and confectionery products produced by the public catering industry. However, this experience is being disseminated slowly and the share of public catering products sold through stores in the overall volume of the nation's retail commodity turnover remains low. At the same time, in many places the population's demand for culinary and confectionery products is not satisfied.

Large losses in commodity turnover occur when stores are closed for longer than the scheduled period for repairs and inventory-taking. These losses also occur when trade enterprises are not staffed with personnel. The newspaper's readers are continuously writing letters to the editor on this subject. "At the end of last year, our general merchandise store was closed for repairs. For more than half a year, we have had to walk four kilometers for every trifle," report residents of the village of Nurlata in the Buinskiy Rayon in the Tatar ASSR.

It turned out that precisely the same kind of complaint could have been signed by the residence of another eight large and small population centers in Buinskiy District where general merchandise stores had not been in operation for a single day in the first quarter of this year. Losses in commodity turnover due to the temporary closure of these stores amounted to 130,000 rubles. The shortfall was almost the same in the Buinskiy District due to the brief, numerous and also unplanned temporary closures of other trade points. In general, all these losses combined to form the very sum that Buinskiy Raypo workers lacked to fulfill the commodity turnover plan.

The intensive plan targets and the difficult market conditions were unquestionably a serious test of the efficiency, mastery and reliability of the rear areas of trade. In places where they spare no effort, where they do not cite objective difficulties, where they stubbornly strive to meet the planned goals, they achieve these goals. Frankly, the victories of our front-rank people do not come easy. But they do exist and they force us to realize that many other collectives can also probably meet their intensive plans if they also strive diligently.

5013
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CONSTRUCTION IMPROVEMENTS IN APARTMENT COMPLEXES NOTED

Moscow EKONOMICHESKAYA GAZETA in Russian No 23, Jun 87 p 18

[Article by V. Meshechek, chief of the Residential Housing Repair Administration of the Gosgrazhdanstroy: "Apartment With a Mansard"]

[Text] V. Meshechek, chief of the Gosgrazhdanstroy Residential Housing Repair Administration, discusses preparations in progress for wide-scale reconstruction of houses of the first mass series.

In 1958-1963, more than 50 series of residential buildings of standard design were erected in our country. The designs were developed by central and republic design organizations on the basis of four basic design systems.

In many cities of the country, construction of the first mass series of residential buildings was accomplished in the form of large residential complexes. There are many examples: Novyye Cheremushki in Moscow; Dachnoye in Leningrad; Nivki in Kiev; Tekstilshchiki in Donetsk; Pavlovo Pole in Kharkov; Sarukhany in Baku.

The buildings erected in this period, mainly of the five-story kind, may be described as nondescript in their urban development and architectural planning solutions, with many design shortcomings and faults.

This apparently was the underlying reason for the unjustified announcement made by specialists of the Moscow GlavAPU [Main Architectural Planning Administration of the City of Moscow] relative to the imminent demolition of the five-story large-panel residential buildings.

Detailed technical and economic analysis carried out by institutes of Gosgrazhdanstroy [State Committee for Civil Construction and Architecture] and other organizations indicated that these buildings offer sufficient stability and reliability; they are capable of serving people for a considerable period of time -- on the order of 100 years and more. Demolition of the five-story buildings would be technically and economically disadvantageous. If repaired and renovated, they could be of substantial assistance in the resolution of the housing problem.

Gosgrazhdanstroy specialists are presently drafting general outlines for the general reconstruction of residential complexes erected during initial

employment of the industrial technique of residential construction. The outlines provide for greater density of residential construction, improving the reliability and comfort levels, elimination of communal apartment living, and other measures.

For this purpose, within the framework of an all-union program, studies are to determine actual amounts of spaces in each series, the technical condition, and the style and user attributes of the edifices. The studies also are aimed at ascertaining structural defects and deformations peculiar to various climatic conditions. Also being determined is the efficiency of various approaches to using and renovating all the existing buildings from the urban development standpoint.

The TsNIIEPZhilishcha [Central Scientific Research and Planning Institute of Standard and Experimental Planning of Housing], in collaboration with a number of other institutes, has prepared and published the "Recommendations for Modernizing Five-Story Mass Series Residential Buildings of Standard Design", which include the basic principles of improving architectural planning solutions and the mechanical equipment of buildings, the respective design approaches, and suggestions for evaluating the technical and economic consequences of these solutions.

Work has been completed in the area of: suggestions for restoring and reinforcing completely fabricated buildings employing polymer bonding; working projects of building block approaches and of mechanical equipment in buildings; a method for evaluating the economic and social effectiveness of major repair and modernization and rebuilding of existing housing.

The reconstruction program has been noticeably enriched by the All-Union Design Suggestion OpenCompetition, which offers feasible approaches to the renewal of first mass series housing. A total of 115 suggestions submitted by architects and designers from 30 cities were reviewed. The designs were based on 23 series of residential buildings adapted to construction and climatic conditions peculiar to virtually all areas of the country. Suggestions that are the most interesting from the architectural planning, design and technological standpoint will be employed as the basis of construction in the current five-year plan.

A number of designs submitted to the All-Union Open Competition deal with the creation of MZhK's [Youth Residential Complexes]. Many architect design offerings address the problem of creating a new type of housing for young people, even though it may not satisfy all the requirements of construction norms.

The advantages of rebuilding extend beyond rectifying physical wear and obsolescence of the five-story buildings. Additions and superstructures make it possible to provide original residential and cultural spaces. Living area lost as a result of remodeling can be partially or completely compensated for by adding bay windows; increasing the number of floors; utilizing attic space to build apartments on two levels; providing a mansard floor for young families; and equipping creative shops, clubs, and other facilities in accordance with interests of members.

In the period 1987-1989, an experiment will be carried out in areas of the country which differ in construction and climatic requirements. The purpose of the experiment is to select the most reasonable architectural planning approaches that are the most responsive to modern housing standards; evaluate the effectiveness of various design solutions from the standpoint of improved reliability of buildings; devise new technological approaches; and establish actual costs and other technical and economic indicators.

As a rule, development of the experimental projects is being assigned to the institutes -- the originators of the respective standard designs that were followed when the particular buildings were erected.

The open competition between various ideas and approaches, by pursuing a search and implementing the results, can speed up the introduction of new and effective developments and promote improvement of traditional methods.

It is planned to carry out the first phase of the experiment in Moscow, Krasnodar, Leningrad, Yalta, the Ukrainian SSR, Uzbek SSR, and Georgian SSR.

Based on the experience of effecting major repairs of first mass series buildings, which was associated with resettling residents in Moscow, Kaluga and a number of other cities, it is known that the cost of the major repairs is 40 to 60 rubles per square meter of total space. However, in many cases this figure can be considerably smaller due to inadequacies of technical solutions and technologies employed.

Expert opinion applied to projects developed to modernize these buildings indicates that outlays for apartment renovation can amount to approximately 60 to 80 rubles per square meter of total space, while in the case of rebuilding, the involvement is 100 to 120 rubles. In this connection, the estimated share of costs of renovation and providing a higher level of amenities comes in at 20 to 50 percent.

Extension of the useful life of first mass series housing is associated with substantial savings of material resources. Under this approach, we retain the existing infrastructure, essential soundness of construction, and existing green spaces.

A considerable social effect is inherent in respecting existing family and everyday ties and retaining the traditional patterns of people's labor activity.

The success of the program of renovating five-story buildings depends largely upon the RSFSR Minzhilgrazhdanstroy [Ministry of Urban Housing Construction and Development]; ministries of housing and municipal management and committees for construction affairs of the union republics; and ispolkoms of local Soviets of People's Deputies, which must accelerate the preparation and accomplishment of operations on the objects of the experiment.

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PIPELINE TRANSPORT OF HIGHLY VISCOUS PRODUCT

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 4, Apr 87 pp 61-63

[Article by A.I. Kazubov of Transnefteavtomatika [Oil Transport Automation] SKB [Special Design Bureau] under the rubric "Transportation and Storage of Oil": "Pipeline Transport of Highly Viscous Product"]

[Text] The transmission of highly viscous oil and petroleum products is one of the most difficult types of pipeline transport, making special demands on the reliability of the technology and equipment employed. The use of thermal insulation makes it possible to ease the transport of high-viscosity products and sharply reduces heat losses to the ground surrounding the pipeline.

Interesting in this regard are the data for one of the polyurethane-insulated trunk pipelines. Polyurethane insulation 20-25 mm [millimeters] thick is adequate to preserve the temperature gradient in the transmission of product in an interval of an initial 80-90 degrees Celsius and an ultimate temperature of 45 degrees Celsius, but a polyurethane layer of 50 mm was applied to the pipeline to allow for possible operational and emergency situations. The planning institutes recommended the following insulating materials: asphalt with local filler materials or refractory asphalt for dry soils, and rigid polyurethane for moisture-bearing soils. The complexity of the technology and considerable inconvenience of operating with asphalt insulation materials in the right-of-way led to the fact that the construction organizations selected polyurethane as the insulating material.

Static testing of polyurethane insulation showed that the latter has physio-mechanical properties adequate for conditions of underground operation. The limits of strength in compression (0.3 MPa [megapascals]), crushing (0.2 MPa) and bending (0.4 MPa) permit polyurethane to tolerate complex deformations in installing the pipeline in the ground. At a pipeline axis depth of up to 1.5 m [meters], the ground pressure on the insulation as measured in the experiments does not exceed 1.5 MPa (this value corresponds to sections of thermal insulation on the lower generatrix).

The thermal properties of polyurethane (thermal conductivity of 0.035 W/(m-K) [watts/meter-Kelvin] and softening point of no less than 90°C) ensure its high insulating ability. The adhesion of polyurethane to metallic surfaces is no lower than 0.1 MPa, which determines the anti-corrosive properties of the

material; water permeability with surface water absorption of about 300 cubic cm [centimeters]/square meter (GOST [All-Union State Standard] 20869-75) imparts 95-96-percent closed pores to the polyurethane.

Prolonged testing of sections of thermal insulation on metallic surfaces (tank walls and pipes) under atmospheric (20 years) and ground (18 years) conditions has demonstrated that a thin-film casing of polyurethane at low pressure and polyvinylchloride or polyethylene adhesive films can be recommended for protecting the polyurethane from the effects of the ground. The longevity of the polyurethane thermal insulation is estimated at 30 years, the same as the service life of gasoil pipeline sections. A gasoil pipeline was built in 1984 and installed in the right-of-way using pipe insulated in advance under shop conditions. The insulation work was conducted using technology, machinery, units and devices developed at the Transnefteavtomatika SKB.

In the shop, the prepared metallic pipe was placed in a mold 12 m long that was subsequently closed up with fast-acting clamps and covers, and liquid polyurethane composites were poured in. The ends of the pipe (100-150 mm) remained uninsulated. The polyurethane pipe was held about 20 minutes for final hardening, and then the insulation was wrapped with a film of polyvinylchloride tape, the number of layers of which was determined by ground conditions. The pipe was fed by transporter to a pipe-welding base, where it were welded into sections. The 24-meter sections were shipped to the right-of-way and strings were assembled from them and laid in trenches. The weld joints were insulated with polyurethane with the aid of a portable mold.

Experience has shown that the process of insulating the weld joints on the right-of-way is somewhat more difficult than in the shop. In the summertime, it is expedient to insulate the pipeline in the morning hours. In hot weather, it is necessary to take up (decrease) the quantity of catalyst so as to reduce the intensiveness of the exothermic reaction occurring in the mold. In shrinkage the insulation is lengthened, and the zone is again treated with polyurethane. Some of these operations in restoring the polyurethane are typical of the period of pipeline operation as well.

In order to raise the reliability of subsequent operation, cofferdams are installed at the valves on the line sections of insulated pipelines where they join with the installed row of product pipelines. Return valves are installed in the cofferdams that prevent the leakage of product into the product pipeline. In the event of a prolonged emergency on the gasoil pipeline, product from it is displaced with diesel fuel and the petroleum product is pumped from it from the head pumping station or from the end pumping station.

Crossings of streams, ravines, roads and other obstacles are as a rule at grade level. The insulated section is rolled into a casing with the aid of a special attachment and is fastened along with the casing to supports. On grade sections of short length, fiberglass insulation with a shell of thin-film aluminum is planned. Underwater crossings are to be executed according to an annular pipe layout with polyurethane filling the space between the pipes. A design of thermal- and water-insulated sections in a waterproof casing whose ends are located above the high-water mark was more reliable.

A chamber for inserting cleaning devices and batteries for the heat exchangers for heating the product are in the area of the lead pumping station. The end-point pumping station is for replacing product in the pipeline with a low-viscosity liquid (for example, in an emergency at the main pumping station) and pouring it into railroad tank cars. A chamber for receiving cleaning devices is alongside the pumping station. Ecological factors are also taken into account when cleaning the pipeline. Sediment from cleaning must be shipped out of the cleaning structures of the lead pumping station. After eliminating an accident on a line section, the restoration of the ground and the removal of polluted ground with recultivation of the soil is envisaged.

In connection with the lack of some provisions concerning, in particular, the testing of thermal-insulated trunk pipelines in SNiP 42-80 (Trunk Pipelines. Rules for Production and Acceptance of Operations), the Transnefteavtomatika SKB has developed Technical Conditions for the Production and Acceptance of Insulated Operations and the Construction of Polyurethane-Insulated Pipelines.

A considerable amount of commercial testing, including for stability, was conducted with a regard for the purpose of an insulated trunk pipeline planned without compensators and channels. These tests were carried out by pumping hot water at maximum temperature and operating pressure. Dislocations of the pipeline on a vertical plane were not noted. The length of the test section (string) was taken to be equal to the distance between line valves. Defects in the form of small cracks in the pipe were detected in hydraulic testing. The search for defects was accelerated with the use of a search and measuring complex for the detection of leaks from the firm of Metravib. The length of the section for detecting leaks with the aid of the complex is 400 m with a precision of defect determination of 0.2 m. Leaks of up to 3 liters/hour cannot be ascertained by the complex, and they were registered on the KAI-80 acoustic cable locator with more frequent pitting (every 100-150 m). The execution of repair and restoration work associated with the removal of polyurethane and subsequent insulation takes longer than for conventional pipeline. The pumping of product through the pipeline began after it was heated with a low-viscosity liquid, comprising about one volume of pipeline.

Yuzhgipronefteprovod [Southern State Scientific Research and Planning Institute of Oil Transmission] and other planning institutes have developed programs for computer calculation of the operational parameters of the pipeline. Based on the results of the first months of operation, it is possible to ascertain that the temperature gradient in the pumping of product is equal to 12-14°C at even minimal productivity, and time the pipeline can be safely halted without displacement with a low-viscosity liquid is over a full day. The saving in using polyurethane insulation compared to an asphalt-based one is about 800,000 rubles a year.

The use of polyurethane insulation thus raises the operational reliability of trunk pipelines in the pumping of highly viscous product.

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CENTRAL COMMISSION ON DEVELOPING OIL FIELDS

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 4, Apr 87 pp 72-76

[Article by V. Ye. Gavura and I.P. Vasilyev: "Materials of the USSR Central Commission on the Development of Oil Fields"]

[Text] A session of the USSR Central Commission on the Development of Oil Fields was held in June of 1986 at which planning documents for the development of fields in Tyumen, Tomsk and Orenburg oblasts, the Tatar ASSR and the Ukrainian and Uzbek SSRs were reviewed. A process model for the development of the Pogranichnyy Oilfield of the Noyabrskneftegaz [Noyabrsk Oil and Gas] Association composed by Ukrgiproniineft [Ukrainian State Scientific Research and Planning Institute of Petroleum] (planning leader L.E. Mirzoyan) was discussed.

This field was discovered in 1982. Oil accumulations were found in the column in formations B_{11}, B^1_{11}, B_{11} (northwest accumulation), B_{14}, B_{15} and Yu_1. The principal development site is the B_{11} formation, lying at a depth of 2,583-2,655 m [meters]. It is confined to two oil accumulations: the principal one with an extensive oil-water zone comprising over 60 percent of the oil content, and a small one in the area of well 63. The average oil-saturated thickness of the site is 11.3 m with a porosity of 20 percent, a permeability of 75 x 10^{-3} microns per square meter, a sand ratio of 0.75 and a disjointedness of 5.6.

The second most significant site, Yu_1, lies at a depth of 3,103-3,073 m and is characterized by relatively low productivity equal to 0.74-1.38 tons/day-megapascal. The average oil-saturated thickness of the formation is 3.4 m, the porosity is 17 percent, the permeability is 5 x 10^{-3} microns/square meter, the sand ratio is 0.34 and the disjointedness is 4.

Formations B_{14}, B_{15} (two lithologically screened accumulations have been found in them) and Yu_1 are poorly studied; core examination is lacking, and the properties of the oil under formation conditions are taken by analogy with other fields.

In 1984, based on preliminary data of exploratory operations, a process model was composed for the development of the Pogranichnyy Field that was accepted as a plan for experimental-test operation. In order to accelerate the

placement of the field into development, the rapid survey of the principal site B_{11} was carried out. Drilling of planned producing and injection wells was begun in 1985.

The process model presented (1986) proposed singling out two independent development sites: the B_{11} and Yu_1 sites. The further exploration, testing and exploitation of the reserves of formations B_{14}, B_{15} and B_{11} (northwest accumulation) will be accomplished by return wells from the principal sites.

The employment of a modular three-row system with wells located on a 500 x 500 m grid was recommended for the principal site of B_{11}; the drilling of infill producing wells (at 250 m) in converging rows within the boundaries of the oil zone is envisaged. The question of carrying out experimental-test injection of an aqueous solution made up of chemical reagents (OP-10, OP-12 and caustic soda) in an element of the modular system (eight producing and three injection wells) with the subsequent commercial incorporation of the process was considered. The incorporation of a dispersed nine-point system (a grid of 500 x 500 m) is planned for site Yu_1; experimental operations are proposed to begin at three elements of the dispersed system (24 producing and 3 injection wells). Mass hydraulic fracturing of the formation is recommended at wells with low productivity. The principal method of operation is mechanized (ETsN [electrical centrifugal pumps], SShN [expansion unknown]).

In the course of discussion, proposals were made to elaborate on the sequential nature of the drilling of the sites, the application of cyclic flooding in conjunction with changes in the direction of filtered flows and the creation of a fringe of Cenomanian water from the beginning of development in a volume of 20 percent of the pore space. It was noted that the drilling of infill wells in converging rows in advance and its expediency should be considered for the later stages, and the employment of solitary grids (500 x 500 m) for sites B_{11} and Yu_1 and pressure at the wellhead of the injection wells is not sufficiently well-founded.

The Central Commission for Development agreed with the proposals made and recommended approval of the principal fundamental provisions and technical and economic indicators of the development of the Pogranichnyy Field. The Bureniye NPO [Scientific Production Association], SibNIINP [Siberian Scientific Research Institute of the Petroleum Industry] and the Noyabrskneftegaz Association were instructed to develop measures to ensure the high-quality segregation of the oil- and water-saturated formations in the new wells and the execution of repair operations in existing ones.

A plan for the development of the Lokosovskiy Oil Field of Tyumen Oblast by the Tatneft [Tatar Petroleum] Association, as composed by TatNIPIneft [Tatar Scientific Research and Planning Institute of the Petroleum Industry] (planning leader Z.Z. Gufaranova) was reviewed. The commercial oil content has been established in the Cretaceous deposits (formations B_6, B_5 and A_2). Formation B_6 is compound sand and clay soil: the number of sand bands varies from one to eight. The average thickness of oil saturation is 5.85 m, porosity is 21 percent, permeability is 104×10^{-3} microns/square meter, the sand ratio is 0.53, disjointedness is 2.5 and the viscosity of the oil under formation conditions is 2.3 megapascal-second. Formation B_5 is separated from

the lower-lying formation B_6 by a quite consistent clay section 7-10 m thick. The formation is consistent in area and the clay bands (from one to five) have a phacoidal manner of propagation. The average thickness of oil saturation is 7.5 m, the porosity is 21 percent, the sand ratio is 0.73, disjointedness is 2.4 and the viscosity of the oil is 2.4 megapascal-seconds. The accumulation in formation A_2 is widely dispersed in across the entire cross-sectional area, and the number of sand bands reaches 10. The average thickness of oil-saturation is 4.5 m, porosity is 21 percent, permeability is 175 x 10^{-3} microns/square meter, the sand ratio is 2.7 and the viscosity of the oil is 3.7 megapascal-seconds.

The field was placed in commercial operation in 1976 based on a comprehensive development plan composed by Giprovostokneft [Eastern State Planning Institute of the Petroleum Industry]. It proposes the delineation of two operational sites B_5 and B_6 and the employment of a dispersed seven-point system of flooding (grids of 600 x 600 and 700 x 700 m).

The Central Commission for Development in 1976 adopted a resolution on the conducting of experimental testing for ensuring the flow of wells to the final stages in the development of formation B_5 and the achievement of 80-percent water encroachment for site B_6. In 1978 SibNIINP composed a process model that envisaged more rapid rates of drilling with the preservation of the basic provisions approved earlier. In connection with the fact that the wells ceased to flow at a water encroachment rate of 30-40 percent in formation B_5 and 20 percent in formation B_6, the Central Commission in 1980 deemed inexpedient the execution of an experiment under conditions of worsened formation reservoir properties. and the conversion of the producing wells of the experimental section to a mechanized method of operation was proposed.

The drilling of the basic planned well inventory has practically been completed, and the producing inventory has been mechanized to a considerable extent. The state of development of the field is unsatisfactory. The actual level of oil and liquids production over 1980-1985 was lower than planned. Low rates of conversion of wells to a mechanized mode of operation and the untimely organization of flooding and withdrawal in elements of the dispersed seven-point system, which has led to the uneven flooding of wells, are noted.

A conversion to a linear modular five-row system in the development plan for formations B_5 and B_6 has been proposed; the drilling out of the oil and water peripheral zones on a 600 x 600 m grid and the employment of cyclic stimulation are envisaged. Contour or outer-contour flooding combined with inner-contour flooding is recommended for the accumulation of formation A_2.

The Central Commission for Development noted the unsatisfactory state of the development of the Lokosovskiy Field: an insufficient regard for pumping water into productive formations, the poor utilization factor of producing wells, the presence of an inventory of wells with liquid crossflows, the absence of proper monitoring of the development process and essential analysis of the current state of development and the inadequate study of the modular five-row system of development being proposed for incorporation.

The planning document was approved as a supplement to the process model for the Lokosovskiy Field, and TatNIPIneft was charged with composing a program of field geological and experimental research that envisages the extraction and study of core samples, the injection of tracers and an analysis of the state of working of the reserves by site for the purpose of evaluating the efficiency of the dispersed seven-point flooding system being realized. The Tatneft Association was instructed to take urgent steps to eliminate the liquid crossflows in the wells.

A process model for the experimental commercial development of the Strezhevskiy Oilfield in Tomsk Oblast employing the injection of composites from the Institute of Petroleum Chemistry (IKhN) of the Siberian Branch of the USSR Academy of Science, composed by SibNIINP and the IKhN (planning leaders A.I. Vashurkin, L.K. Altunina and V.V. Novgorodov), was reviewed.

The oil accumulations are confined to the terrigenous formations of the Yu_1 stratum of the upper part of the Vasyugansk Upper Jurassic suite uncovered at a depth of 2,700 m. Western (larger) and eastern accumulations have been discerned within the confines of the deposit. The western accumulation is being considered as a site for the application of the method, where three domes have been noted. The drilling of the field began in 1971, and in 1978 it was placed in commercial development. The Yu_1 stratum of the western accumulation is being developed with the application of a dispersed seven-point system of flooding with wells arranged in 500 x 500 m grids.

The process model envisages drilling the northern part of tne western accumulation ahead and the placement of all injection wells into pumping service and an audit of the well inventory for air tightness before the start of commercial-test operations. It is further proposed to change the system of oil collection; the division of the product into oil and aqueous phases will be accomplished right in the field, envisaging the secondary utilization of the IKhN water composite solution.

The drilling of developmental tests wells is planned to evaluate the technological efficiency of the indicated method. The laboratory testing of the method under conditions that model the field experiment at the Strezhevskiy Field and clearly establish its efficiency is recommended.

The process model for the commercial-test development of the Strezhevskiy Field using the injection of composites from the IKhN of the Siberian Branch of the USSR Academy of Sciences was approved, and the Nefteotdacha [Petroleum Yield] MNTK [Intersector Scientific and Technical Complex], in conjunction with SibNIINP and IKhN, was charged with developing a technique for evaluating the efficiency of employing this composite and measures to monitor its development. It was recommended that SibNIINP, in conjunction with VNII and IKhN, continue scientific research work on studying the efficiency of various composites with the aim of their widespread application in the fields of West Siberia and analyze the efficiency of the utilization of composites at the Sovet, Vakhskiy and Samotlor fields.

The flowchart for the commercial-test development of the Minnibayevskiy area of the Romashkinskiy Field employing the periodic injection of gas and water

in experimental sections was discussed, along with the development plan for the Shegurchinskiy Oilfield, the process model for the development of oil accumulations 301, 302 and 303 of the Verey-Bashkir and Serpukhovo deposits of the Romashkinskiy Field, as composed by TatNIPIneft (planning leaders N.F. Doroshchuk, R.G. Ramazanov and R.G. Khamzin).

In the process model for the development of the Minnibayevskiy area, four experimental sections of productive deposits of the Pashkiy and Kynovskiy strata (D_0, D_1) were singled out as sites for conducting commercial-test operations. Eight sand-aleurolite formations were noted in a sample of the D_1 stratum. The average oil-bearing thickness of the site varies from 2.4 to 3.5 meters, permeability is 514 x 10^{-3} microns/square meter, porosity is 17-20.4 percent, the sand ratio is 0.49, disjointedness is 4.03 and the viscosity of the oil under formation conditions is 3.8 megapascal-seconds.

The Minnibayevskiy area is being developed with the application of inner-contour flooding and is at the stage of declining extraction under conditions of considerable growth in inundation. In the process model under consideration, the method of periodic injections of gas and water to test for complete washout of the residual oil from the highly inundated formations at three experimental sections (wells 9601, 2476 and 10863) and in one section (well 20140) with the primary displacement of the oil from the formation that represents a separate lens is proposed. For more effective complete washout of the residual oil from the inundated formations, it is proposed to inject an aqueous surfactant solution of high concentration (5-10 percent) before the injection of gas. According to laboratory data, this increases the displacement factor an average of 7 percent. The proposed process of periodic injection of gas, water and surfactant solutions does not envisage changes in the selective-focus system of flooding and the density of well grids (22 hectares/well) in the experimental sections.

In the process of discussion, the necessity of additional development of the technique for evaluating the technological impact and questions of technical support for the method, possible losses of gas due to its sticking in the formation and the permissible duration of its continuous injection were noted.

The Central Commission approved the process model for the commercial-test development of the Minnibayevskiy area and charged the Tatneft Association with supporting the experimental operations and TatNIPIneft with developing a technique for evaluating the effectiveness of the method.

The plan for the development of the Shegurchinskiy Field singled out five operational sites: Tulsko-Bobrikovskiy, Turneyskiy, Aleksinskiy, Bashkirskiy and Vereyskiy. Drilling was begun in 1972 in the oil accumulations of the Shergurchinskiy section in a square grid of 400 x 400 m, in the Yuzhno-Shegurhinskiy in square grids of 500 x 500 m with subsequent infill and the southern section of the Turneyskiy accumulation with its drilling out in triangular grids of 350 x 350 m.

The field is being operated on the basis of the 1978 process model that envisages the development of the Tulsko-Bobrikovskiy stratum and the Turneyskiy stage in a unified well grid. Contour and selective flooding has

been adopted in the Shegurchinskiy section, along with outer-contour flooding and separate water injection at the Yuzhno-Shegurchinskiy, and a dispersed seven-point flooding system at the Tulsko-Bobrikovskiy and Tureyskiy deposits and the southern zone of the Yuzhno-Shegurchinskiy section. At a section of the Vereyskiy stratum, consisting of converted seven-point elements, an experiment is being conducted in determining an efficient technology for the development of oil accumulations in carbonate reservoirs.

A lag in the actual indicators compared to the planned ones has been noted at the field, which is basically explained by the inadequate efficiency of outside-of-contour flooding.

The plan's authors recommend further improvement of the system of development being realized and the inclusion in exploitation of difficult-to-recover reserves in carbonate reservoirs and envisage the placement in development of the accumulations of the Vereyskiy stratum and the Turneyskiy stage as independent sites with their drilling in equilateral triangular grids with distances between wells of 300 and 350 m respectively. The accumulations of the Vereyskiy stratum are proposed for development with the employment of inner-contour flooding combined with outer-contour; the execution of experimental operations in injecting sulfuric acid is planned. The development of the accumulations of the Alekseinskiy stratum and the Bashkirskiy stage are recommended to be accomplished with return wells of the Tulsko-Bobrikovskiy and Vereyskiy strata respectively. At the suggestion of an expert commission, a variant of development that envisages the placement of wells in the Vereyskiy stratum and the Turneyskiy stage in triangular grids at a distance of 400 m was considered.

The Central Commission for Development noted the poor grounding of the dynamics of the planned yields of wells and development times for the variants and economic standards for the conditions of the field being exploited. TatNIPIneft was charged with reworking the development plan for the Shegurchinskiy Field with a regard for the observations and suggestions expressed.

In accordance with the process model for the development of oil accumulations 301, 302 and 303 of the Verey-Bashkirskiy and Serpukhovo carbon deposits of the Romashkinskiy Field, the delineation of two separate development sites (the Verey-Bashkirskiy and the Serpukhovo) was proposed with drilling in zones with formations more than 3 m thick in grids of 289 x 253 m and the employment of dispersed flooding systems (nine-point for the Verey-Bashkirskiy and thirteen-point for the Serpukhovo sites), and cyclic flooding combined with the periodic injection of sulfuric acid, as well as the employment of directional hydrochloric-acid drilling bit runs for the purpose of intensifying petroleum extraction.

Productive formations lying at a depth of 700-800 m are typified by considerable dispersion and high lateral and layer heterogeneity. The average thickness of the section between the Vereyskiy and the Bashkirskiy accumulations is 2.6 m, and between the Bashkirskiy and the Serpukhovo 6.1 m. The Vereyskiy accumulation is a stratified vault and practically completely lithologically screened, while the Bashkirskiy and Serpukhovo accumulations

are among the stratified mass type and are hydrodynamically associated with the water-bearing region that is more actively manifested in the Serpukhovo accumulation. The accumulations are saturated with heavy sulfur-bearing crude oil with enhanced viscosity and small gas content (3.2-4.1 cubic meters/ton). According to the results of prolonged experimental operation, the initial petroleum yield was an average of 9.1 tons/day for the wells of the Serpukhovo stage, 3.6 tons/day for the Bashkirskiy stage and 4.9 tons/day for the Vereyskiy stratum.

Commercial-test and research operations have been conducted since 1978 at seven experimental sections (104 wells) in testing cyclic flooding under the conditions of carbonate reservoirs and hydrochloric-acid drillings, the hydraulic manageability of formations, study of the specific features of filtration of liquids with the aid of tracers, the establishment of optimal bottom-hole pressures, the development of methods of isolating floor waters, battling salt deposits and studying the optimal density of well grids.

An exaggeration of the planned rates of extraction for low-productivity carbonate reservoirs and enhanced-viscosity crude oil and the necessity of conducting experimental operations on testing methods of stimulating formations with heat-transfer agents for the Verey-Bashkirskiy deposits and elaborating economic indicators were noted.

The Central Commission approved the proposed process model for development and felt it was expedient to begin flooding of the Verey-Bashkirskiy deposits with the assimilation of a dispersed thirteen-point system with the later conversion where necessary to a nine-point or selective one. The placement of the Serpukhovo accumulation into exploitation in natural-flow mode was envisaged, and TatNIPIneft was charged with elaborating the standards for capital investment for well drilling.

An elaborated plan for the development of the Dolinskiy oilfield composed by the TsNIL [Central Scientific Research Laboratory] of the Ukrneft [Ukrainian Petroleum] Association (planning leader M.I. Buchkovskaya) was considered. The oil accumulations of the field are confined to the Paleogene deposits of the Dolinskiy block, which is broken up into nine sections by transverse tectonic faults. The commercial oil content is associated with three accumulations: the Menilitovyy, the Vygodsko-Bystritskiy and the Manyavskiy. The average weighted oil-saturated thickness varies from 36 to 80.6 m, permeability from 3.1 to 9.7 x 10^{-3} microns/square meter, a sand ratio of 0.12-0.71 and disjointedness of 6.6-15.1. The upper portion of the Manyavskiy deposits seems to be tuffite. The accumulations are stratified vaults that are tectonically screened.

The Dolinskiy Field is being developed according to a 1978 plan that envisages the delineation of three operational sites (the Menilitovyy deposits with wells in 350 x 350 m grids, the Vygodsko-Bystritskiy with 250 x 300 m grids and the Manyavskiy with 300 x 400 m grids), the employment of a dispersed flooding system for the Menilitovyy accumulations and contour and inner-contour flooding for the Vygodsko-Bystritskiy and Manyavskiy accumulations. The field is in the latter stages of development.

In the new plan (1986), the delineation of three sites and is preserved and a further improvement of the system of development is planned via a strengthening of site stimulation through the creation of additional injection points and the placement in operation of poorly developed sections of the accumulations and the application of cyclic stimulation combined with changes in the direction of filtration flows, along with experimental operations in micelle-polymer flooding in the section of the Vygodsko-Bystritskiy accumulation using an aqueous micelle solution as the displacement agent.

The Central Commission approved the elaborate development plan for the Dolinskiy Field, noting its high quality.

The flowchart was reviewed for the development of the Umid Oil and Gas Field, executed by the SredazNIPIneft [Central Asian Scientific Research and Planning Institute of the Petroleum Industry] (planning leader A.V. Grinenko). The field is a massive oil and gas accumulation with an extensive gas cap confined to the Upper Jurassic reef complex. The accumulation stretches under ground water. The productive formations are biomorphic reef limestone. The average gas-bearing thickness is 67.5 m, the oil-bearing one is 6.7 m, the porosity is 13 percent, the permeability is 100 x 10^{-3} microns/square meter, the sand ratio is 0.62-0.86 and disjointedness is 1.5-1.8. The viscosity of the oil under formation conditions is 1.17 megapascal-seconds.

The process model considered versions of development in a depletion mode and a version with the recirculation of high-pressure gas.

The technology recommended for incorporation includes a combination of the two methods: the injection of high-pressure gas into the oil portion of the accumulation with the formation of a transition zone of displacement and a cycling process (the injection of dry gas into the gas-condensate portion and the receipt of "rich" gas with high condensate content). The use of producible gas (petroleum gas and gas breaking through the gas cap) is envisaged as the displacement agent where there is anti-corrosion protection for the compressor station or the purification of the gas. The well operation method is free-flow with conversion to non-compressor gaslift.

The realization of the development version with the recirculation of high-pressure gas is associated with certain difficulties due to the presence of hydrogen sulfide (up to 0.1 percent) and carbon dioxide (up to 3.9 percent) in the composition of the gas being injected, which requires the use of anti-corrosion compressors. Furthermore, the characteristics of the accumulation, the parameters of the reservoir, the correlation of the thicknesses and the reserves of oil and gas can have a negative influence on the process of the blending and customary displacement of the oil with gas.

The necessity of elaborating on the principal parameters of the formations and carrying out additional experimental research in the study of the physio-hydrodynamic properties, the composition of a program of commercial test operations, elaboration of the dynamics of the extraction of condensate and economic indicators and a consideration of the question of supplying gas for the cycling process was noted in the discussion.

The Central Commission agreed with the basic observations and proposals expressed in the course of discussion. The process model for the development of the Umid Field in natural mode with drilling in a low-density grid with subsequent bringing to planned level (500 x 500 m) was approved.

The Uzbekneft [Uzbek Petroleum] Association, in conjunction with the SredazNIPIneft, was charged with elaborating the principal geological parameters of the productive formations and fluids in the process of drilling the accumulation; carrying out a whole set of field geological research on monitoring water-oil and gas-oil contact in the process of controlled extraction of gas from the gas cap and determining the maximum allowable non-gas and non-water yields of oil and allowable depressions in production wells; analyzing, according to the results of exploitation, the indicators for the development of the field with a regard for opportunities for the use of flooding and new methods of raising the oil yield of formations.

A process model composed by Girpovostokneft (planning leader N.V. Opurin) was reviewed for the commercial-test development of formation A_3 of the Rodinskiy Oilfield of Orenburg Oblast. Formation A_3 of the Vereyskiy stratum is lithologically complex with heterogeneous permeating bands of sands in lens and semi-lens forms. The permeability is 9.3 x 10^{-3} microns/square meter, the porosity is 17 percent, the sand ratio is 0.57-0.82 and the disjointedness is 3.5. The viscosity of the oil in the formation is 8.6-11.8 megapascal-seconds. The formation is of limited extension and is of the stratified-vault lithologically screened type. It has been in test operation since 1981; there are 11 producing wells in operations, and the oil yield is 1-4 tons/day.

Two experimental sections in the area of maximum petroleum saturation have been singled out in the oil zone for the purpose of studying the selection of development system, the optimal network of wells, the injection pressure and the conditions for uncovering the formation. The creation of four elements of a dispersed seven-point system with 350 x 350 m grids is proposed for the southern section, along with two elements in the northern section: a seven- and a thirteen-point system with well grids of 600 x 600 m.

In order to increase productivity, it was recommended that half of the wells be drilled with an open bottom. Experience in the operation of such wells at the Pokrovskiy Field served as the basis for this. The productivity of thirteen producing wells in formation A_3 of the Pokrovskiy Field with open bottoms was thus 3.8-times higher than the productivity of 35 wells nearby with bottoms of conventional design.

The Central Commission approved the process model for the commercial-test development of formation A_3 of the Rodinskiy Oilfield.

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SPEECH BY GAS MINISTER WITH OFFICIALS' COMMENTARIES

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[Edited version of speech by Minister of the Gas Industry Viktor Stepanovich Chernomyrdin "The Gas Industry at a New Stage of Development" at an expanded session of the collegium and Presidium of the Central Committee of trade unions of the workers of the oil and gas industries on 30 Jan 87]

[Text] The attention of all Soviet people is riveted today to the resolutions of the January (1987) Plenum of the CPSU Central Committee, a major political event in the life of the country. The plenum considered a whole set of issues that are of paramount importance for the successful implementation of the strategic course developed by the April (1985) Plenum of the CPSU Central Committee and the 27th Party Congress.

The report of CPSU Central Committee General Secretary M.S. Gorbachev at the plenum gave a deep analysis of the first lessons of restructuring; measures were projected for further deepening socialist democracy and the development of self-management by the people; the fundamental principles of the selection, placement and education of personnel at all echelons of the party, state and economic apparatus were formulated.

The workers of the gas industry wholly and completely approve of the resolutions of the plenum and are adopting them for unswerving guidance and execution. Their consistent realization will be of decisive significance in accelerating the intensification process of the sector and its advance to a qualitatively higher level. In this regard it is essential, as V.S. Chernomydrin emphasized, to reflect critically on the course of restructuring in the sector, impart greater sweep and depth to it, raise substantially the level of personnel work in light of high modern requirements, make long-term production growth factors maximally active and bring all reserves into action.

In 1986 the gas industry moved up a step. The plans for gas, condensate and oil production, sales of industrial output, labor productivity, profits and other important technical and economic indicators were successfully fulfilled. Nationwide gas production exceeded 686 billion cubic meters, and totaled 632.7 billion cubic meters for the enterprises of the ministry. The national economy received some 14 billion cubic meters beyond the plan. The collectives of Glavtyumengazprom [Tyumen Gas Industry Main Administration] and

the Turkmengazprom [Turkmenistan Gas Industry] and Orenburggazprom [Orenburg Gas Industry] associations made a decisive contribution to the realization of the targets.

The production of gas condensate and oil was brought to 27.8 million tons, which was 1.1 million tons more than the plan. The production volumes for sulfur, helium and liquified gases and consumer goods were overfulfilled. The growth rate of industrial output was 7.9 percent, and that of labor productivity was 6.5 percent.

A broad program of capital construction was implemented: more than 10 billion rubles of capital investment were assimilated and the plan for construction and installation work was fulfilled. Some 11 comprehensive gas treatment installations [UKPG], 9,400 kilometers of trunk gas pipelines and 44 compressor stations were placed in operation.

Among the major facilities placed in operation ahead of schedule in 1986 were the Yamburg Field, the Yamburg--Yelets Gas Pipeline (first leg) and more than 1,500 kilometers of the Yamburg-Yelets (second leg) line section. The inclusion in operations of the first phase of the Astrakhan Chemical-Gas Complex with a production and refinement volume of 3 billion cubic meters of gas was a major labor achievement and concrete incarnation of the resolutions of the 27th CPSU Congress on accelerating the assimilation of the oil and gas wealth of the Caspian Basin.

A program for reinforcing the social base of the gas industry is being fulfilled. About 1 million square meters of housing along with social and cultural facilities have been placed in operation.

In giving due to what has been accomplished, attention should be concentrated, as V.S. Chernomydrin stressed, on the more complex and large-scale tasks that stand before Mingazprom [Ministry of the Gas Industry] in 1987, on which the results of the entire five-year plan will largely depend. It is planned to bring the production of gas to 663 billion cubic meters (and 712 billion cubic meters for the country overall) and that of oil and condensate to 29.4 million tons. It is furthermore essential to give some 9 billion cubic meters of gas to the national economy under reciprocal plans adopted by labor collectives.

In order to meet the planned extraction volumes, it is essential first and foremost to increase capacity at the Yamburg, Karachaganak and Sovetabad fields and the Field imeni 28 April and to accelerate the development of the Astrakhan Chemical-Gas Complex. A most important task is the completion of the construction of the Yamburg-Yelets (second leg) and Yamburg-Western Border of the USSR gas pipelines. The construction and start-up of some 12,000 kilometers of gas pipelines, 58 compressor stations, 80 AGNKS [automated gas compressor stations] and 5 UKPGs is planned overall.

In the face of all of the enormous work that was carried out by the labor collectives in 1986, there still exist many serious omissions and unutilized reserves. For every 100 enterprises, 3 did not fulfill the product output plan, 6 the sales plan, 4 the labor productivity plan and 19 ended the year

with losses. The product sales plan, taking into account targets and supply obligations, was underfulfilled by 4.7 million rubles.

The drilling operations plan was not handled. The number of idle operational wells, especially in the Soyuzuzbekgazprom [All-Union Uzbek Gas Industry], Ukrgazprom [Ukrainian Gas Industry] and Sakhalinmorneftegazprom [Sakhalin Offshore Oil and Gas Industry] associations, was still took great. The overconsumption of fuel-and-power and other material resources was tolerated.

Since the first days of the year, the sector has gone over to new management conditions that require the implementation of major cost-reduction measures, the unconditional fulfillment of contract obligations and an increase in the responsibility of associations and enterprises for the results of operations and expanding their economic accountability. Not only the fulfillment of the production plans, but also the achievement of high ultimate economic indicators, is becoming a chief factor of successful operation under the new conditions. Essential for this is a constant analysis of the activity of every association in every area and the systematic monitoring of the results of the work of the enterprises subordinate to them, insofar as frequently many shortcomings that are intolerable under the new management conditions are concealed behind indicators that are favorable overall.

The speaker further dwelled on the most typical shortcomings using the example of a detailed analysis of the work of Glavtyumengazprom, Glavmorneftegaz [Offshore Oil and Gas Main Administration] and the Turkmengazprom and Orenburggazprom associations and placed specific tasks before the collectives of these enterprises for ensuring the fulfillment of the targets for this year.

The collective of Glavtyumengazprom finished the year with good indicators. Some 5.8 billion cubic meters of gas and 171,000 tons of condensate were extracted, 62 million rubles worth of product was sold and 23 million rubles of extra profit were obtained beyond the plan. At the same time, the existing large reserves were not utilized fully at all. Thus, the plan for drilling was only 76 percent fulfilled, and the construction of 79 wells was not completed. Commercial rates were below the 1985 level. Non-productive losses of time in drilling totaled 25 percent. The level of organization of operations was too low here as before. Instead of 3.3 million rubles of planned profit in drilling, a loss of about 2 million occurred. Notwithstanding steps taken by the ministry to reinforce drilling management both in the main administration and in the Tyumenburgaz [Tyumen Gas Drilling] Association, the state of affairs has not improved appreciably.

The management of Glavtyumengazprom is obligated immediately to improve the organization of drilling operations and reinforce auxiliary production, seeing to it that all of the services are aimed toward the ultimate result--the timely turnover of wells and a reduction in their cost. The drilling administration should finally develop a well-defined strategy for drilling management that meets the needs of restructuring and improving the economic indicators of operations.

A lag in capital construction has also been permitted in the main administration. The plan for the start-up of fixed capital was underfulfilled by some 123 million rubles, and 6 enterprises ended the year with losses. Due to non-productive spending, more than 30 million rubles of profit was not obtained. It should be kept in mind that under the new conditions, with this manner of operation all of the funds earned by the collectives for the fulfillment and overfulfillment of the production program will go for the payment of penalties and the associations will not have at their disposal sources for the accumulation of economic incentive funds.

The tasks before Glavtyumengazprom in this five-year plan require the mobilization of the efforts of all workers for the resolution of crucial issues first of all. In particular, the state of affairs in capital construction must be improved and the construction of facilities at the Urengoy Field must be completed. The infrastructure of the Yamburg Field, through which practically all of the nationwide increase in gas extraction in the 12th Five-Year Plan will be ensured, should be at the center of attention.

It is extremely important not to neglect the preparation of work in progress. It is essential to accelerate the completion of planning on the Surgut Motor-Fuels Plant and the reconstruction of the Surgut and Urengoy plants for condensate refining, as well as resolving issues of equipping them completely.

The main administration and the associations must complete work on reviewing planning solutions and reducing the cost of capital being placed in service, eliminating from the work in progress facilities of paramount importance.

The Turkmengazprom Association produced 1.1 billion cubic meters of gas and 34,000 tons of condensate beyond the plan and fulfilled the targets for the principal economic indicators. At the same time, the existing facts testify to a weakening of exactingness and discipline here and a decline in responsibility for the matter entrusted to them. Capital construction was unsatisfactorily implemented, especially the facilities of the Sovetabad Field. The housing problem is very acute for the enterprises of the association. Hence the highest turnover in the sector.

Technological discipline in the fields could be better. The treatment of gas for long-range transmission is accomplished poorly as before. The Turkmengazprom Association management must carefully analyze the potential capabilities of existing gas installations and take specific steps as quickly as possible that guarantee the feed of treated gas from the fields.

The association has many shortcomings in drilling: technical and economic indicators have worsened compared to 1985. Non-productive time exceeded 27 percent. The average commercial rate at the Sovetabad Field for 27 wells being drilled was 305 meters per standard month. Moreover in 1983, when the drilling operations were only being expanded here, it exceeded 800 meters per standard month.

Proper work is not being carried out in the association on the training of personnel (drillers) and raising their qualifications. The auxiliary services are not providing for the uninterrupted operation of the drilling teams.

Hence the poor economic results: instead of a profit of 2.5 million rubles, there was a loss of 1.2 million.

The serious attention of the Geological Administration should be devoted to the in no way justified slowness in resolving the concentration of prospecting operations. They are now being conducted at 29 sites, which entails a dissipation of material and labor resources.

The stockpiles of uninstalled equipment in the Turkmengazprom Association over the past year hardly declined at all. Steps are not being taken to straighten out accounting and the storage of material assets, the warehouses are overloaded as before and excess resources are not being utilized.

The management of the association must improve the qualitative level of the work of the collective entrusted to them under the new management conditions, eliminate existing shortcomings and in conjunction with the Drilling Administration, set about improving the structure and improving the organization of drilling operations.

The Orenburggazprom Association provided for the production of more than 600 million cubic meters of gas and 300,000 tons of condensate with oil beyond the plan and overfulfilled the principal economic indicators. The tasks in assimilating the Karachaganak Field, however, require the increased attention of the management of the association toward the start-up of facilities and the construction of wells. It is completely intolerable when the plan for the start-up of fixed assets is not even 50-percent fulfilled.

The association has not at all activated the reserves for increasing the production of gas and condensate and improving technical and economic indicators. The plan for the placement of new wells into operation was not fulfilled and the number of inactive wells increased.

The plan for drilling operations at the Karachaganak Field was not fulfilled. Their suitable organization is lacking here, questions of the allocation of housing have not been resolved and the construction of water-supply systems, sidings and electrical-transmission lines to the wells is lagging.

The chief task of this year is to accelerate the advance of the first phase of the Astrakhan Chemical-Gas Complex to planned capacity and in that manner ensuring the refining of 1 billion cubic meters of gas and the processing of up to 300,000 tons of sulfur beyond the plan. It is essential to complete the construction of environmental protection facilities for the first phase of the Astrakhan GPZ [Gas Refinery]. Construction and installation work of a total of not less than 60 million rubles will have to be completed this year in order to ensure the start-up of the second phase of the Astrakhan complex in 1988, i.e. a year earlier than stipulated.

The projected measures to accelerate the assimilation of the Astrakhan and Karachaganak fields ahead of the targets of the five-year plan introduce serious corrections in our work and require, in turn, an acceleration in the planning and construction of a number of facilities. The gas-processing, planning- and prospecting-operations and capital-construction administrations

must organize this work in suitable fashion and make the scientific research and planning institutes more active in the solution of all of the problems in assimilating the fields of the Caspian Depression without delay.

The enterprises of Glavmorneftegaz produced 100,000 tons of oil with condensate and 131 million cubic meters of gas beyond the plan. They were able to considerably replenish last year's debt in this manner.

At the same time, the capital and productive capacity created is not being fully utilized. Finance and economic activity requires decisive improvement. The well inventory of the Sakhalinmorneftegazprom Association is being utilized unsatisfactorily. The inventory of low-yield wells, whose operation is unprofitable, in the Kaspmorneftegazprom [Caspian Offshore Oil and Gas Industry] Association is too large. The development of the majority of the fields in these associations is being implemented with large digressions from the plans and technological diagrams, the incorporation of secondary methods of oil production is lagging and much petroleum gas is burned off in flares. Insufficient attention is devoted to the organization of repairs and raising the reliability of equipment operation.

The drilling operations plan for the main administration is not being fulfilled due to the lag in exploratory drilling. The fleet and mobile offshore drilling rigs are being utilized with low efficiency. The drilling organizations of the Kaspmorneftegazprom, Kubanmorneftegazprom [Kuban Offshore Oil and Gas Industry] and Arktikmorneftegazrazvedka [Arctic Offshore Oil and Gas Exploration] associations finished the year with large losses.

The state of affairs with the construction of marine facilities evokes serious concern. The capital-construction plan for 1986 was not fulfilled. The start-up of fixed capital totaled 87.5 percent. Much important production capacity was not placed in operation.

Glavmorneftegaz, in conjunction with the associations, must develop a well-defined program that ensures the fulfillment of the plan for 1987 and the five-year plan overall, envisaging in it improving the utilization of capital, accelerating the electrification and automation of field facilities and the start-up of new capacity, developing repair bases and raising the efficiency of fleet operations. It is essential first and foremost to analyze the state of affairs in drilling and render real assistance to the drillers in eliminating the loss-producing nature of their operations.

The chief criterion of sector operations is the stable supply of gas to consumers and ensuring the reliable functioning of the links of the Unified Gas Supply System (the USSR YeSG) of the country.

The gas-transmission enterprises have basically handled their work. A number of measures for preparing for winter, however, were not realized in timely fashion. The plan for the repair of the line sections of gas pipelines was not fulfilled and obsolete capital-repair processes were utilized as before, which makes it more expensive. The readiness of the line-operational services declined and they were insufficiently outfitted with machinery and equipment. The anti-accident training of teams was not conducted in the majority of the

line production administrations of the Aztransgaz [Azerbaijan Gas Transmission], Volgogradtransgaz [Volgograd Gas Transmission], Mostransgaz [Moscow Gas Transmission] and Uraltransgaz [Urals Gas Transmission] associations, and rules for the technical operation of trunk gas pipelines were violated. The shortcomings noted in the work of the gas-transmission enterprises, an important link in the YeSG, should be eliminated in the shortest possible time.

In discussing the course of restructuring in the sector, V.S. Chernomydrin analyzed the state of affairs in the most important area of restructuring--the acceleration of scientific and technical progress. It was noted that appreciable results have been achieved in this recently. In conjunction with allied industries, the development of new equipment for the technical retooling of the gas industry has begun. A whole set of progressive innovations has been incorporated at the Yamburg Field. Original technical solutions for the assimilation of the the fields on the Yamal Peninsula have been prepared.

At the same time, there exist serious shortcomings hindering an acceleration of scientific and technical progress in the activity of the scientific production associations and institutes. Restructuring is being carried out too slowly in the majority of the institutes, and many scientists continue to work in an old-fashioned manner. Their efforts are aimed basically at improving traditional processes, but with such an approach to the creation of the new it is impossible to achieve a great national-economic impact.

Duplication has still not been fully eliminated. Even within the framework of a single scientific production association (VNIIgaz [All-Union Scientific Research Institute of Natural Gas], VNIPIgaz [All-Union Scientific Research and Planning Institute of Natural Gas] and SevkavNIIgaz [North Caucasus Scientific Research Institute of Natural Gas]), parallel research has been conducted in the sulfur cleaning of gas and the creation of inhibitors and insulating coatings, but there are still no real results. Questions of raising the utilization efficiency of the fleet and mobile offshore drilling rigs remain outside the field of view of science.

Sector science still has a weak influence on raising the level of planning solutions. They include obsolete equipment and make poor use of the results of scientific developments. The executives of institutes are not satisfactorily occupied with the incorporation of completed developments and do not point the collectives toward specific work with the producers in the realization of the technical solutions being created. As a result, the return on the incorporation of the development of such institutes as VNIPImorneftegaz All-Union Scientific Research and Planning Institute of Offshore Oil and Gas], Sakhalinmorneftegaz and VNIImorgeo [All-Union Scientific Research Institute of Marine Geology] do not even cover the expenses for their upkeep.

The work of the Soyuzgazavtomatika [All-Union Gas Industry Automation] Association, responsible for the level of automation in the industry, requires decisive improvement. As of now there is still not a single remote-controlled field or compressor station. The auxiliary services (electric power plants,

boilers, GRS [gas-distributing stations] etc.), where the principal number of support personnel are concentrated, have remained beyond the field of vision of the association. Proper attention is not devoted to questions of the development of reliable low-level automation equipment. As a result, the assimilation of the Yamburg Field is being conducted with the employment of the watch method of support without ultimately finished automation systems.

In connection with the transition to new methods of economic operation, the role of the associations and enterprises in the incorporation of new equipment is growing immeasurably. Certain managers, however, have still not reconstructed their attitudes toward this matter. In 1986, the Soyuzuzbekgazprom, Tyumentransgaz [Tyumen Gas Transmission], Arktikmorneftegazrazvedka and Kuybyshevtransgaz [Kuybyshev Gas Transmission] associations did not handle the targets of the State Plan for the Development of Science and Technology. The Yakutgazprom [Yakutia Gas Industry] Association delayed for a year in ordering equipment for an installation to produce methanol from natural gas. The experimental commercial operation of the GPA-Ts-6.3 corrosion-resistant unit was begun quite late in the Orenburggazprom Association.

The essential preconditions have recently been created for a major qualitative leap in accelerating scientific and technical progress, and issues of material supply, reinforcing the experimental base and stimulating scientific research work have been resolved. It is now necessary to shift all specific work directly to the labor collectives and to mobilize all scientific potential for accelerating the development of new equipment.

The restructuring of the work of scientific production associations, institutes and design bureaus should be completely finished in 1987. Basic research must be sharply strengthened in the creation of non-traditional resource-conserving technologies; work must be developed more broadly on scientific support for the assimilation of the oil and gas resources of the Yamal Peninsula and the Caspian Depression and the development of new equipment and automation systems for these regions.

The technical and sector administrations, in conjunction with the leading institutes, must strengthen work on creating new equipment and modernizing that already produced for the technical retooling of the sector, wherein no less than 90 percent of this equipment should correspond to the best world prototypes in its indicators.

The executives of associations and enterprises must expand work on the fuller utilization of existing fixed capital and the technical retooling and reconstruction of production, and include the scientific research and planning institutes in the resolution of this task. The new economic mechanism gives production associations additional economic levers for stimulating scientific developments. These opportunities must be used skillfully.

Work on raising the quality of product output has become appreciably more active in sector enterprises. The product output plan for high-quality goods has been fulfilled. The state of affairs herein, however, requires further improvement. Thus, only 1/3 of the product output at the Soyuzgazmashapparat

[All-Union Gas Machinery and Apparatus] Association, and less that 15 percent of that in the Soyuzgazmashremont [All-Union Gas Machinery Repair] and Soyuzgazavtomatika associations, corresponds to the highest quality categories. In 1986 the organs of USSR Gosstandart [State Committee for Standards] imposed a ban on the products of a number of plants. Some items produced by the plants of the Soyuzgazavtomatika VNPO [All-Union Scientific Production Association] were stripped of their state marks of quality according to the results of tests.

A new GOST [State Standard] will be in effect starting in 1988 for gas for industrial and municipal use. In connection with this the Administration for Gas and Gas Condensate Production, the gas-producing associations and the Soyuzgaztekhnologiya [All-Union Gas Industry Technology] NPO [Scientific Production Association] must quickly implement measures for a radical improvement of the quality of the field treatment of gas.

Starting in the second half of 1987, sector acceptance with great authority, right up to forbidding the delivery of low-quality products, will be introduced in the gas industry. It will also monitor the quality of the gas supplied to consumers. This acceptance is envisaged to be introduced at fields and gas-refining and machine-building plants. The administrations of the ministry's central apparatus must complete efficiently organizational work on introducing sector acceptance, develop the corresponding standard documents and select and train personnel, while association managers must carefully prepare subordinate enterprises for working under these conditions.

One of the chief concerns of the ministry is improving planning and eliminating shortcomings in capital construction. Much work has been done in the sector on reducing the number of newly started construction sites and concentrating capital investments on the principal facilities and preconditions for the completion of construction in standard time periods have been created. The plan for the start-up of fixed capital was fulfilled in 1986. At the same time, restructuring is proceeding extremely slowly in this most important sector of activity. Many important facilities, including compressor stations, trunk and branch gas pipelines and AGNKSs were not started up in the stipulated time periods.

There were many omissions in supplying construction sites with equipment and materials. In their own contract activity, more than half of organizations were unable to handle the plan for construction and installation work.

The requisite order in planning and estimating work has still not been imposed. Common are instances where the issue of planning estimates for 1987 construction projects is delayed, especially in VNIPItransgaz [All-Union Scientific Research and Planning Institute of Natural Gas Transmission], TyumenNIIgiprogaz [Tyumen State All-Union Scientific Scientific Research Institute of Natural Gas], YuzhNIIgiprogaz [Southern State All-Union Scientific Research Institute of Natural Gas] and VNIPIgazdobycha [All-Union Scientific Research and Planning Institute of Natural Gas Extraction].

A radical turnaround did not occur in the quality of plans either: obsolete technical solutions are often incorporated in them and they do not provide for

a reduction in production expenditures or a decline in the number of support personnel. The planning targets are issued without proper study of the technical and economic grounding. The cost of this stage has been determined to be, as a rule, 15-20 percent higher than the cost of the planning.

The planning institutes should devote primary attention to the creation of plans using the latest scientific and technical achievements that provide for the application of power- and resource-conserving technologies and the maximum possible reduction of costs and economy of capital investment. An evaluation of the work of planners will now be conducted proceeding from the actual economy obtained at enterprises, and not by current expenditures.

People and their needs and the creation of suitable social and domestic conditions should constantly be at the center of our attention. This was emphasized once again at the January (1987) Plenum of the CPSU Central Committee. In 1986 the ministry was able to handle, albeit at the price of great efforts, the plan for the operational start-up of housing and social and cultural facilities. Based on the example of AvtoVAZ, the labor collective of the gas industry rendered great assistance to the construction workers, taking part directly in the completion of residential housing, kindergartens, schools, clinics and other facilities.

At the same time, a priority attitude toward the construction of facilities in the social sphere has still not become the norm for all managers. The construction of facilities in the social sphere was accomplished in unsatisfactory fashion in Glavtyumengazprom and the Soyuzuzbekgazprom, Kharkovtransgaz [Kharkov Gas Transmission], Kievtransgaz [Kiev Gas Transmission] and Eksporttransgaz [Export Gas Transmission] associations.

Much work has been done on the development of subsidiary agricultural production, trade support and public catering for the workers of our sector. Some 12 kilograms of meat, 20 kilograms of milk, 26 eggs and 10 kilograms of vegetables were produced on a per-worker basis. The subsidiary plots within the associations have become a substantial help in supplying their collectives with food products.

Nonetheless, steps are not being taken in a number of associations to organize and develop their own agricultural shops and the material and technical base of trade, the cost of the products of animal husbandry is still too high and the feed base is being developed poorly.

The personnel have enormous responsibility in accelerating the socio-economic development of the gas industry. The transition from administrative to economic methods of management and the expansion of the independence of associations and enterprises places the personnel under fundamentally new conditions.

M.S. Gorbachev, in his report at the January Plenum of the CPSU Central Committee, emphasized that the success of restructuring depends to a decisive extent on how quickly and deeply our personnel perceive the necessity of changes and how creatively and purposefully they bring party policy to life.

Organizational and mass political work right in the labor collectives has become more animated recently. It is aimed at having every worker work at full return, deeply understand his tasks and make a significant contribution to the realization of plans. Exactingness of executives for the matter entrusted to them has been increased.

All managers, however, are still not actively rebuilding their work with people and seeking new forms and methods for resolving production issues. Such important factors in the selection and placement of management personnel as openness and a regard for the opinions of labor collectives and party and trade-union organizations are poorly utilized, which engenders errors. Work on the certification of personnel and the creation of a full reserve for promotion is not being developed properly in all associations, enterprises and organizations.

The level of training and retraining of personnel should be raised substantially and they should be prepared in advance for newly started production facilities and the support of new equipment and technology. The creation of a system of study, the selection of engineering and technical personnel and their training for management work is required. It is important to train operational managers and specialists to make full use of the rights and opportunities granted to them. In the selection of managers, the field of view should include such qualities as the ideological and theoretical Weltanschauung and political maturity, moral foundations, the ability to convince and lead people and the ability to make decisions and take responsibility for oneself.

In the spirit of the requirements of restructuring the mechanism of economic operation, a new approach is needed to the organization of socialist competition, in order to impart openness and fighting spirit to it, release the creative potential of labor collectives and more fully activate the human factor.

The organization of effective competition must be considered a most important task of managers and party and trade-union committees. There should be no formalism in this affair, obsolete approaches must be rejected, existing canons must be broken more boldly and better use must be made of the spirit of competitiveness. We have those to compare with. They are first and foremost the leading workers of production, the people of high professional skill, inquisitive mind and bold inquiry, those such as Heroes of Socialist Labor Aleksandr Ivanovich Parilov and Vasiliy Grigoryevich Kalinichuk, USSR State Prize Laureates Vladimir Andreyevich Bondar and Zinaida Semenova Ivanova and many others.

We must move forward persistently and without vacillation, objectively evaluating what has been achieved, not fearing to correct mistakes and to seek and find new ways and methods of resolving tasks that arise, thereby advancing to the planned levels.

V.S. Chernomyrdin expressed firm confidence in the fact that the laborers of the gas industry, displaying high patriotic consciousness, will meet the 70th anniversary of Great October with crash work and ever more significant

practical deeds in all sectors of work and will successfully handle the plan targets and socialist obligations of this year and the five-year plan overall.

[Commentary by Severgazprom [Northern Gas Industry] VPO [Scientific Production Association] General Director B.V. Budzulyak under the rubric "From the Rostrum of the Party Economic Aktiv: Opinions on...": "The Rapid Drilling of Yamal"]

Under Mingazprom Order No 137, our ministry is obligated to support 200,000 meters of drilling operations in this five-year plan at the Bovanenkovskiy Field on the Yamal Peninsula. Taking into account the extreme working conditions, as well as the exceptional importance of the task posed, the collective of the association has come forward with the initiative of beginning drilling a year earlier than stipulated in the order.

Specific steps have already been taken in this area today. A program of primary measures to support drilling operations beginning in 1987 has been developed. It encompasses issues of creating planning-estimate documentation, transportation plans, material and technical support, determination of the size of capital investment and the pattern and composition of enterprises.

A coordinating council for the realization of the indicated programs has been created, as has a deep-drilling expedition whose formation is proceeding. Issues have been resolved in the ports for the delivery of 27,000 tons of various cargoes to Cape Kharasavey. The accumulation of material and technical resources and transportation in the Port of Murmansk is underway so as to begin the navigational season as rapidly as possible.

A transloading base, equipment hardstands and housing for construction, transport and drilling workers have been prepared on Kharasavey. In connection with the reorientation of the time periods for the start of drilling a year earlier, however, a number of projected measures are being fulfilled too slowly, and some issue are not being resolved at all.

For example, there is no drilling plan for the five-year plan, and in this regard issues of financing for the procurement and delivery to Yamal of materials and equipment have not been resolved; questions of financing expenditures for the mounds for well clusters have not been resolved, and very little funding has been allocated for the construction of pioneer drilling bases; the transfer of equipment from Glavtyumengazprom to the association is causing delays, as are the allocation of personnel and wage funds for the workers of Yamal and the absence of planning estimates. A cafeteria could have been operating on Yamal already, but Glavursselkhozgaz [Main Administration of Workers' Supply of Agriculture of the Gas Industry] is not resolving issues in providing food for the workers.

There are many other issues that have decisive significance in the fulfillment of the tasks that have been posed. This testifies to the fact that not all administrations and departments of the ministry have understood the initiative of beginning drilling a year early, and this means that we do not have the support of all of them at all.

[Commentary by Urengoygazdobycha [Urengoy Gas Extraction] PO [Production Association] General Director R.S. Suleymanov under the rubric "From the Rostrum of the Party Economic Aktiv: Opinions on...": "Strengthening Construction in Urengoy"]

There was a considerable lag in the start-up of new capacity in Urengoy over the course of 1986. The association has taken energetic steps, but has yet to be able to fulfill the capital construction plan. The start-up of fixed capital totaled just 92.3 percent of the plan. The association, as a client, has been unable to organize the construction and operational start-up of the facilities of the first phase of the oil fringe and gas cooling stations at UKPG-11 and UKPG-12.

Over the course of the first half of 1986, the construction of housing in the city was conducted far behind schedule. Notwithstanding the steps taken to supply the construction sites with labor resources, we were unable to rectify the situation. Only 128,800 square meters of housing, out of a planned 171,600, or 75 percent of the plan, was placed in service. And this occurred notwithstanding the assimilation of a record amount of capital investment at the engineering structures of the city. Analysis shows that over the course of 1986 the association in effect built up a new city in the northern part of the country starting from scratch.

The principal reasons for the non-fulfillment of the plans for capital construction were, first and foremost, the insufficient capacity of the construction subdivisions of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] engaged at urban facilities, as well as the poor work of the association as the client in issues of supporting the contractors with planning estimates [PSD], financing and the outfitting of facilities. In the middle of January, in conjunction with Glavurengoygazstroy [Urengoy Gas Industry Construction Main Administration], the principal areas of work for this year were defined: The UGPS [Urengoy Civil Industrial Construction] Trust was also applied to urban facilities in the capacity of general contractor for the construction workers from Armenia and the NUGS [Novyy Urengoy Civil Construction] Trust as general contractor for the the construction workers from Moldavia. The tasks of the client were also determined, first of all in providing PSD. The unsatisfactory work of the planning institutes is not a new issue and has not left the agenda for many years. As before, the PSD reaches the client very late and is of poor quality and insufficient amount, especially that from LENZNIEP. This also frequently explains our friction with the general contractor, who does not ensure the timely turnover of the most important facilities. In our opinion, without a strengthening of the LENZNIEP branch in Novyy Urengoy with experienced specialists and the creation of a branch of Fundamentproyekt [State Institute for the Planning of Foundations and Substructures], the situation will not be corrected. These are not new issues and they have long needed answers, now at the level of the central apparatus of Mingazprom.

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NEW APPROACH TO OFFSHORE FIELD EXPLORATION

Moscow GAZOVAYA PROMYSHLENNOST in Russian No 4, 1987 pp 54-56

[Article by L.B. Berman of VNIPImorneftegaz [All-Union State Institute for Offshore Oil and Gas] under the rubric "Assimilation of the Continental Shelf": "A New Approach to Exploring and Surveying Offshore Deposits"; first paragraph is source introduction]

[Text] The proposed stage diagram of offshore exploration (OE), based on the concept of considering it an element of a unified system for assimilating offshore sites, is aimed at achieving the maximum national-economic impact from its use.

The principal tasks of OE are:

--the discovery, evaluation and preparation for development of quality deposits of oil and gas;

--raising the trustworthiness of evaluations of prospective and forecast resources;

--grounding base data for the development of technical requirements for special offshore equipment and technologies essential for the assimilation of deposits discovered and promising oil and gas sites.[1]

The first two tasks are traditionally resolved in exploratory operations on land, and the third task is specific to OE. Its resolution permits the creation of specialized production of equipment, and first of all series-produced, as well as the development of technologies essential for the rapid and profitable assimilation of oil and gas resources at sea.

An analysis of domestic and foreign experience in offshore exploration demonstrates that an OE system should differ substantially from that traditionally employed in exploratory operations on land. This is conditioned by the economic indicators of the offshore production of oil and gas: under similar geological conditions, the cost of offshore oil and gas production is substantially higher than on land. Economic factors bring about considerable technical limitations:

--existing equipment and technology provides an opportunity for carrying out a whole set of operations in assimilating offshore deposits only in parts of the water area with relatively favorable natural and climatic conditions;

--the recovery ratios of hydrocarbons in offshore deposits are lower than on land under similar topographical and geological conditions;

--the the geological coverage of water areas, especially arctic ones, is poor.

On the other hand, increased demands are made of the trustworthiness of the results of OE: on the basis of them, without OPE, the optimal systems of development and field infrastructure must be determined, since they cannot be corrected later without considerable cost.

The stage nature of current exploration at sea and on land is practically one and the same, which does not seem optimal due to the high probability of discovering poor-quality deposits at sea. The quality threshold for offshore deposits is defined as the reserves of oil and gas and their concentration per unit of area; well productivity; the physio-chemical properties of the oil and gas and the filtration and volumetric properties of the rock containing them; and, the natural and climatic conditions in the zone where the deposits are located, conditioning the choice and cost of the equipment and technology for the extraction of the oil and gas and the level of development of the infrastructure for offshore extraction.

The existing stage nature of exploration for oil and gas is basically oriented toward known quality sites, i.e. sites whose development is currently profitable. It is taken into account herein that the share of expenditures for prospecting is small (for the majority of fields being developed on land it is about 5 percent of total assimilation expenditures), while the system of development can where necessary be corrected in the process of development and will remain highly profitable. The exploration process is regulated in practice by only by the requirements for the detailed nature of the study of the sites under exploration regardless of its commercial value, if the reserves in the field exceed some threshold value (the quantity of which or the technique for the determination of which are not formalized under specific conditions). Exploration is disembodied from the unified process of assimilation and is not regulated using the corresponding criteria. A consequence of this is the employment of practically one and the same technique for surveying deposits that will be in long-term conservation and deposits that will be placed in development comparatively rapidly.

Foreign experience in assimilating offshore oil and gas resources, as well as domestic experience in creating new oil- and gas-producing regions on land, especially in difficult-to-access regions, shows that the beginning of commercial extraction should be preceded by the preparation of a significant volume of known reserves, as well as an increase in the trustworthiness of evaluations of resources that could later be the basis for further development of the oil- and gas-producing industry in the region. This experience is based on economic calculations that provide for a minimum of risk with large capital investments.

Diagram of Stages of Exploration

Stage	Principal Tasks	Principal Objects of Study	Criteria for Completion of Work
I. Exploratory Evaluation	Discovery of deposits and evaluation of their suitability Estimates of reserves and elaboration of oil and gas resources Determination of technical requirements for equipment and technology essential for field assimilation	Oil and gas strata and areas with prospects for production	Evaluation of the suitability of the site according to the national-economic impact of its assimilation (I > 0)
II. Commercial Survey	Estimates of base data for the composition of flowcharts or field development plans	Fields being put into development without conservation	I = max with a regard for the possible losses from inadequate exploration of the field
III. Operational Survey	Estimates of base data for achieving optimal recovery ratios of oil and gas	Fields under development	

Also taking into account the fact that about 80 percent of the current estimates of the initial resources of oil of the continental shelf of the USSR are confined to the arctic and far-eastern water areas, where in the majority of cases oil production would be unprofitable under contemporary operating costs, the assimilation of the oil and gas resources of the waters of the USSR should be carried out within the framework of a long-term energy program that regulates over time in particular the volumes of offshore oil and gas production and the magnitude of its cost for water areas, as well as the volumes of exploratory operations. The latter should ensure:

--an increase in reserves that can profitably be extracted in advance of assigned technical and economic indicators;

--the preparation of reserves with a stipulated national-economic significance whose extraction will be profitable in the future;

--an increase in the trustworthiness of estimates of the potential resource base of the offshore oil- and gas-producing industry.

The table presents a plan for the stage nature of OE (the division of exploratory and surveying work) developed at VNIPImorneftegaz based on the following preconditions:

--exploration is a stage in the unified process of assimilating offshore deposits, and its efficiency is evaluated within the framework of a common estimate of the system of assimilation of both a specific deposit and for offshore oil and gas resources in certain water areas and in the seas overall;

--The separation of exploration into stages that was adopted should provide for an efficient estimate of the commercial significance of the site being surveyed and the maximum national-economic impact from its utilization.

An integrated technical and economic evaluation of the efficiency of operations in the assimilation of every site is envisaged herein. An indicator of the efficiency of the OE system and the whole system is the national-economic impact (I), where all of the expenditures for the assimilation of the deposit, as well as losses in hydrocarbon recovery from the incomplete survey of deposits and the extraction technology employed in relation to that commercially assimilated profitable technology that ensures the maximum recovery ratios, are taken into account.

The principal provisions of the stage nature of exploration are as follows.

1. Every stage in the surveying of a localized site should be concluded at the moment it is established that its further study will not currently lead to an increase in its national-economic significance. Surveying should be halted at once if it is established that the site under survey is unsuitable.

2. Exploratory drilling should begin only at sites for which the probable estimates of prospective resources, as well as other field geological and natural and climatic parameters, are such that in the event of the transfer of prospective or potential resources into recoverable reserves the site is suitable for the profitable extraction of oil or gas at the technical level of assimilation of offshore deposits that has been achieved. In this regard, the first exploratory well should be planned to expose and evaluate all probable accumulations in the site being explored that would determine the potential suitability of the site.

3. The transition from the exploration stage to surveying is permissible only in instances where existing information makes it possible to consider the development of the deposits exposed to be profitable with the confirmation of the least optimistic forecasts on the parameters of the accumulations that determine their commercial significance.

4. Commercial survey of a deposit should end after the composition of a plan or scheme for the development of the whole deposit. If the information obtained is sufficient for the composition of an optimal scheme for the development of part of the deposit, that part can be entered into development, while surveying should be continued with a regard for the plan for operational drilling on the part of the deposit placed in development.

5. Operational surveying should be regulated in the plans or in the technical diagrams for the development of the deposits and should provide for the extent of their study essential for the efficient utilization of all oil and gas reserves within the limits of the stratigraphic complex being developed.

The realization of this system of survey and exploratory work in the OE process will permit a reduction in the amount of deep drilling (especially on offshore drilling rigs) and an acceleration of exploration through:

--a temporary halt in operations at sites whose development at that moment is not economically expedient;

--the combination of exploration and subsequent operations that provide for the extraction of oil and gas;

--an increase in the volumes of offshore geophysical operations at all stages of exploration.

A similar system of OE has also been adopted by the largest foreign firms. An average of six wells is drilled therein to expose and evaluate a single suitable deposit (under conditions where the total number of wells drilled in the region is more than 100), which is roughly 3-4 times less than in field survey on land in the USSR. The domestic geological service is methodologically ready for the transition to a three-stage system of accelerated surveying. The possibility of evaluating the suitability of deposits and their preparation for development according to the results of geophysical operations and the drilling of solitary wells was established as a result of special work in surveying gas deposits in northern Tyumen Oblast, as well as the oil and gasoil deposits in the Timano-Pechora Province and other regions.

FOOTNOTE

1. Assimilation is understood to mean the whole set of operations aimed at exploring, surveying and developing deposits and the creation and operation of extraction, collection, treatment and transmission systems for oil or gas to the consumer, as well as providing for the vital activities of the people that are implementing the assimilation process.

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KAMCHATKA GEOTHERMAL SOURCES STUDIED

Moscow GAZOVAYA PROMYSHLENNOST in Russian No 4, 1987 pp 26-27

[Article by A.B. Buraganov of VNIPIgeoterm [All-Union Scientific Research and Planning Institute of Geothermal Power] under the rubric "Problems and Prospects": "Exploring and Surveying the Geothermal Resources of Kamchatka"; first paragraph is source introduction]

[Text] The surveying of the geothermal resources of Kamchatka Oblast is currently being conducted only in regions where natural outlets for hot springs or geysers have been noted. Certain difficulties, however, are associated with the assimilation of these resources: for heating supply--the considerable distance of the consumers from the discovered sectors, for electric power--the complexity of constructing major electric power plants in remote and inaccessible regions of the oblast. The execution of exploratory and survey work is also proposed in this regard in regions near major heat and power consumers that have promising geothermal conditions.

Table 1 presents data on the population distribution, number of industrial enterprises and the consumption of fuel for the principal regions of Kamchatka Oblast.

The data cited in Table 1 show that within the limits of the most settled and industrially developed region of Kamchatka (Yelizovo--Petropavlovsk-Kamchatskiy), geothermal resources are not used at all. The question arises: would the geothermal conditions of this region permit exploration for geothermal resources? In order to answer this question, we refer to Table 2, where average features of the geothermal field for the regions that have been singled out are presented.[1]

As can be seen from Table 1, the features of the geothermal field in these regions somewhat exceeds the average weighted data for the whole oblast, which makes it possible to recommend the indicated regions for exploratory operations for geothermal resources.

Particular attention should be given to the Petropavlovsk-Kamchatskiy region in selecting sectors for exploratory and survey work. The data of Table 1 make it possible to consider it the largest fuel and power consumer of Kamchatka Oblast. Analysis of Table 2 indicates the good prospects for

discovering geothermal resources in this region. The results of geophysical operations conducted within the confines of the region under consideration also confirm the good prospects for exploratory work on the territory of Petropavlovsk-Kamchatskiy.

Table 1

Region	Number of residents, %	Number of industrial enterprises, %	Imported fuel use, %	Geothermal energy use
Yelizovo--Petropavlovsk-Kamchatskiy	74	96	84	not used
Ust-Bolsheretskiy	10	2	7	electricity production
Kamchatka River Valley	8	none	3	heating supply

Table 2

Region	Average temperature at 2,000 m, °C	Average depth of 100°C isotherm, m	Presence of thermal phenomena
Yelizovo--Petropavlovsk-Kamchatskiy	76.4	2,600	none
Ust-Bolsheretskiy	84.5	2,000	exist
Kamchatka River Valley	67.7	2,700	exist

Geophysicists have singled out two thermally anomalous areas at a distance of 15 km [kilometers] from the city (Avachinskaya and Rodyginskaya) and one on the city line (Zavoyko Rayon). Thermal anomolies with a temperature of over 600 degrees Celsius have been forecast at depths of 3.5-5 km in the Avachinskaya area, at 250 degrees Celsius at 3.5-4 km in the Rodyginskaya area and 150 degrees Celsius at 2.0-2.5 km in the Zavoylo [as published] area. The features of the geothermal field on the territory of the city of Petropavlovsk-Kamchatskiy are important preconditions defining the prospects for assimilating the geothermal resources. The successful utilization of the heat at great depths, however, is possible only with the presence of a sufficient quantity of heat carrier.

In order to form a basis for the presence of thermal waters in the area of the city, we will analyze the geologic structure and the forecast hydro-dynamic

model of the formation of the movement and discharge of the natural flow of underground waters. In accordance with concepts on the conditions for the formation of modern geothermal systems, we feel that the resources of geothermal fields are determined by:

--the mass of the heated waters circulating in the upper zone of the high-temperature water-pressure system;

--the heat contained in the heated ground of the given sector; and,

--the flow of the fluid at depth to the depression zone of stratal pressure through tectonic cracks and faults.

Petropavlovsk-Kamchatskiy is located within the confines of the right side of the Avachinsko-Koryakskiy volcanic chain. This volcanic chain arose as a major superimposed structure on the northeast wing of the Ganalskiy Anticline, which is a graben-shaped fault trough of the northwest expanse about 20 km wide and no less then 40 km long. The trough extends to the east toward the ocean. It is felt that it was caused by the subsidence of a narrow block of the earth's crust in the magma formation zone. The foundation of the depression, constructed of highly cracked Upper Cretaceous rock, was shattered into blocks that were unevenly loaded by the volcanic ridge. These deposits are also characterized by a highly fissured state.

In the opinion of geologists, there exists in the Avachinskiy and Koryakskiy volcanoes a seepage of surface waters through the quarternary deposits to the fissured Upper Cretaceous rock. Taking into account the proximity of the magmatic centers of the Avachinskiy and Koryakskiy volcanoes, the anomalous heat flows and the presence of tectonic fractures and cracks along which the heated waters at depth could advance, it is possible to propose that the surface waters arriving in the Upper Cretaceous deposits, bringing them to the discharge area, are heated not only through the heat of the magmatic centers, but also through the arrival of heat from the earth's core. Thus, taking into account the geologic structure of the region and the proposed pattern for the circulation of underground waters and the conditions for feeding them, there exist grounds for proposing the presence of thermal waters in the Upper Cretaceous rock at a depth of 2-2.5 km. The fact should also be taken into account that existing technology for the development of geothermal fields makes it possible, through the creation of circulation systems, to achieve an increase in the natural reserves of the heat carrier and raise considerably the economic efficiency of thermal waters.

This work makes it possible to draw the following conclusions.

1. In order to provide for a substantial contribution of geothermal resources to the fuel and power complex of Kamchatka Oblast, it is essential to conduct exploratory and survey work not only in the regions of natural geyser outlets, but basically in regions where major heat and power consumers are located that are promising in their geothermal conditions for exploration of geothermal resources.

2. The most promising region for exploration and surveying is the area of Petropavlovsk-Kamchatskiy, which is confirmed by analysis of the principal features of the geotemperature field, the geologic structure and the hydrodynamic model of the region.

FOOTNOTE

1. Hydrogeology of the USSR, Vol 29. Moscow, Nedra Publishing House, 1972.

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STANDARDS NOMENCLATURE, QUALITY CONTROL SYSTEM OPTIMIZED

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[Article by P.M. Grigoryan, I.N. Karabanov and A.M. Aliyev of Gipromorneftegaz [All-Union State Institute for Offshore Oil and Gas]: "Optimizing Standards Nomenclature"; first paragraph is source introduction]

[Text] The development and incorporation of a sector system for managing quality in the gas industry (OS UKPgazprom) and more than 90 comprehensive product quality management systems (KS UPK) in sector associations, organizations and enterprises were completed in 1985. Lead and base organizations of the sector for standardization and quality control carried out an analysis of the functioning of the KS UPKs for a consolidated group of enterprises for the purpose of developing recommendations for improving them.

An analysis of the functioning of KS UKPs carried out by Gipromorneftegaz at the enterprises of Kaspmorneftegazprom [Caspian Offshore Oil and Gas Industry Association] showed that, notwithstanding the positive role of the KS UKPs, they have not yet become a genuine apparatus for controlling the quality of products and the operations of these systems. There are many reasons for this situation, and chief among them is the saturation of the system with standards of enterprises and the association and sector. This makes it impossible to conduct a strict monitoring of their unconditional observance. Not managing to handle monitoring the observance of standards, some enterprises continue to develop, approve and put into effect more and more new standards.

To give these systems flexibility and dynamism, it is essential to simplify the KS UPKs and at the same time raise their functional efficiency. It thus seems expedient for all enterprises to develop as the basis of the KS UPK a comprehensive plan for raising product quality (KP PKP) for the five-year plan broken down by years and for the current year broken down into quarters and months. This plan could easily be monitored, insofar as it contains specific measures, time periods and executors. This plan is furthermore comprehensible and accessible to every member of the enterprise collective. And this factor cannot fail to be taken into account, since quality depends on all of the workers of the enterprises, and not only on their executives.

The need to simplify the KS UPKs can lead to a desire to reject enterprise standards altogether. After all, a multitude of statutes and instructions

regulating this or that sphere of enterprise activity and having an effect to this or that extent on the quality of products and labor are in effect. To avoid such an incorrect decision, the simplification of the system should proceed only according to the results of an analysis of matters of quality.

Having completed an analysis of matters of quality, it is possible to determine for the enterprise a minimum list of standards that are essential for managing the quality of products and labor. The standards of the highest categories should be utilized herein to the maximum. The path of simplifying the KS UPKs can be continued. The base organizations can analyze the multitude of enterprise standards for a consolidated group of enterprises. It cannot be ruled out that the combination of multitudes of standards considered could have some overlap. There consequently exists the possibility of putting higher-category standards extending to a group of enterprises into effect, abrogating similar standards at the given enterprises. The number of standards with whose assistance quality can be controlled could thus be considerably reduced. Repeating this process at the level of the lead organization for standardization could achieve further reductions in the overall volume of technical-standards documents in effect at the enterprises.

As a example, we will consider the process of reducing NTD [technical-standards documentation] at the enterprises of the Kaspmorneftegazprom Association. There are currently more than 300 standards governing quality in effect at the nine enterprises. Ten standards fall into the realm of overlap, i.e. ten standards at these enterprises are analogous to each other. Transferring these standards to the category of association standard, the overall number of existing NTD can be reduced by 80 at the enterprises. A lesser number of NTD herein would ensure the timely monitoring of their observance, and this means that the efficiency of KS UKPs would be increased.

Following the route of simplifying KS UKPs from below, the preparatory period of improving the OS UKPgazprom and the KS UKPs of associations, enterprises and organizations can be considered ended.

Now a route downward is necessary. At this stage, a careful analysis of existing sector standards for product and labor quality management and the determination of the list of standards subject to development are essential. This is a very important stage. On its correct resolution depends whether or not the system will aid the ministry and association apparatus in controlling quality. Knowing the list of sector standards subject to development and review, the associations and enterprises can compose (correct) their lists of standards, eliminating duplication therein. The improvement of OS UKPgazprom and the association, enterprise and organization KS UKPs will conclude with the development and incorporation of standards according to the new lists.

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